BULLETIN OF THE
UNIVERSITY OF NEW HAMPSHIRE

CATALOG

1943 - 1944

DURHAM, NEW HAMPSHIRE

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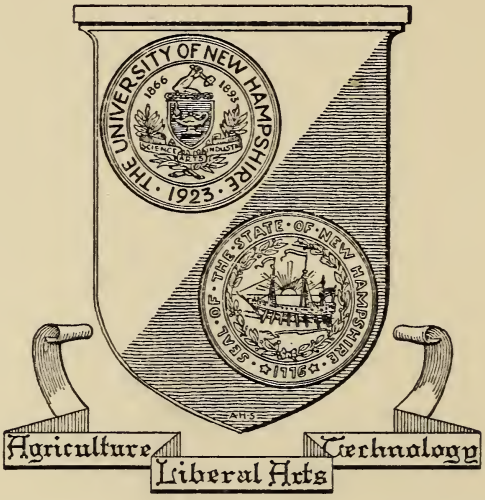

The University
of
New Hampshire

GIFT OF
The University of New Hampshire

Campus University of New Hampshire Durham, N.H.

Durham, the home of the university, is an attractive village on the Portland division of the Boston and Maine railroad, sixty-two miles from Boston, fifty-four from Portland, and five from Dover, a city of 15,000 population. Good train service and excellent trunk-line motor roads make the university easily accessible from all parts of the state.

Durham, organized in 1732, is one of the historic towns of New Hampshire. In the early days it was the home of a prosperous ship-building industry. Situated at the head of tidewater on the Oyster river, it served as a distributing center for the interior of the state. During the Revolutionary war it was famous as the home of Major General John Sullivan. Near his home, in the village, the state has erected a fitting monument to his memory.

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VOL. XXXIV FEBRUARY 15, 1943 NO. 12

BULLETIN *of the* UNIVERSITY *of* NEW HAMPSHIRE

Published semimonthly during the college year by the University of New Hampshire, Durham, N. H. Entered as second class matter, August 5, 1907, at the post office at Durham, N. H., under the Act of Congress of July 16, 1894

THE UNIVERSITY BULLETIN INCLUDES:

The Catalog of the University Issue
The Report of the President Issue
The Financial Report Issue
The Catalog of the Summer School Issue
The Pictorial Booklet Issue
The Catalog of the Graduate School Issue

and other publications of the University

Correspondence regarding the university should be addressed to the following:

General Information, General Information.
Admission and Catalog, Registrar.
Alumni Activities, Alumni Office.
General Extension, Director of General Extension Service.
Graduate School, Dean of the Graduate School.
Summer School, Chairman, Summer School Committee.
Two-Year Course in Agriculture, Office of Applied Farming.

ARCHIVES
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1943/44

THE UNIVERSITY IN WARTIME

The major objective of the University of New Hampshire in this period of national crisis is to further the war effort to the maximum of its ability.

To implement this policy many changes have been made in the educational programs and in the research and extension activities of the university. Only a few of these changes or new developments can be indicated here. Instruction in all three colleges has been accelerated. Though not compulsory, the accelerated program under which the usual four-year college course is completed in two and two-thirds calendar years offers many advantages.

Since women must replace men in industry who are called to military service, courses and programs have been established to train college women for positions as junior engineers, production expediters, assistant chemists, engineering draftsmen, machine operators, junior meteorologists, military map makers, welders, and so on. These special programs are in addition to the many curriculums and courses previously organized for women students and for which trained women are in great need.

In coöperation with the United States Office of Education, many courses have been offered under the Engineering, Science and Management War Training program including courses for welders, engineering draftsmen, and others on the university campus. In-service training programs for the United States Navy Yard and for New Hampshire industries have been given in various cities throughout the state.

The Civil Pilot Training program, conducted in coöperation with the Civil Aeronautics administration, has been converted from an extra-curricular activity to a full-time training program for Navy cadets.

All men students are directly or indirectly preparing themselves for war service. The number of junior men in the advanced corps of the R.O.T.C. has been nearly doubled. All qualified freshmen and sophomores, incidentally, are taking the basic R.O.T.C. course. Nearly half of the men students are enlisted in one of the several Army and Navy Reserve programs.

The Engineering and Agricultural Experiment stations are engaged in experimental studies related to the war effort. The General Extension service in coöperation with the United States Department of Agriculture is devoting every effort to help in food production.

The faculty through the University War Service council and the student body through its War Service committee are organized for many war service activities. The student who comes to the university campus may be sure that he will find an educational program that will assist him in preparing himself for service to his country.

The university is soon to enter upon a new phase of life related to the war effort. In addition to the R.O.T.C., the university has been assigned by the War Department to share responsibilities in conducting an Army Specialized Training Program in the field of engineering and pre-medicine. We may likewise share in providing the basic training for young men who have been selected by the Army as qualified to continue their education for specialist training or for officer training.

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CALENDAR

1943

JULY

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OCTOBER

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APRIL

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The university calendar is omitted from this catalog because of the impossibility of setting exact dates for the 1943–44 college year at the time of going to press. Information concerning the calendar can be obtained from the registrar.

BOARD OF TRUSTEES

His Excellency, Governor Robert O. Blood, M.D., LL.D., *ex officio*

President Fred Engelhardt, A.M., PH.D., LL.D., *ex officio*

Andrew L. Felker, *Commissioner of Agriculture, ex officio*

Roy D. Hunter, LL.D., *President* — West Claremont
June 14, 1916 to June 30, 1945

Harry D. Sawyer — Woodstock
September 15, 1926 to June 30, 1946

James A. Wellman, B.S. — Manchester
January 26, 1928 to June 30, 1943

Robert T. Kingsbury — Keene
January 27, 1928 to June 30, 1944

George T. Hughes, A.M., LL.D. — Dover
July 1, 1931 to June 30, 1943

Jessie Doe — Rollinsford
July 1, 1932 to June 30, 1946

John T. Dallas, A.B., D.D., LL.D. — Concord
July 1, 1933 to June 30, 1945

Frank W. Randall, B.S., *Secretary* — Portsmouth
July 1, 1936 to June 30, 1944

*Henry F. Judkins, B.S. — White Plains, New York
July 1, 1939 to June 30, 1943

*Ernest W. Christensen, B.S. — Dover
July 1, 1940 to June 30, 1944

* Elected by Alumni.

OFFICERS OF ADMINISTRATION

FRED ENGELHARDT, A.M., PH.D., LL.D., *President of the University*

NORMAN ALEXANDER, PH.D., *Dean of Men*

EUGENE K. AUERBACH, M.B.A., *Alumni Secretary and Director, Bureau of Appointments* *

EDWARD Y. BLEWETT, M.A., *Dean of the College of Liberal Arts* *

THELMA BRACKETT, A.B., *Librarian*

GEORGE W. CASE, M.C.E., *Dean of the College of Technology and Director of the Engineering Experiment Station* *

M. GALE EASTMAN, PH.D., *Dean of the College of Agriculture and Director of the Agricultural Experiment Station*

DANIEL S. EPPELSHEIMER, D.SC., *Acting Director of the Engineering Experiment Station*

HARRY M. FITZ, *Acting Superintendent of Properties*

LEON W. HITCHCOCK, B.S., *Acting Dean of the College of Technology*

ERIC T. HUDDLESTON, B.ARCH., *Supervising Architect*

C. FLOYD JACKSON, B.A., M.S., *Director of the Biological Institute*

RAYMOND C. MAGRATH, *Treasurer*

ARWOOD S. NORTHBY, PH.D., *Assistant to the President*

BROCKWAY D. ROBERTS, M.D., *University Physician*

EVERETT B. SACKETT, PH.D., *Registrar*

HAROLD H. SCUDDER, B.S., *Acting Dean of the College of Liberal Arts*

HERMON L. SLOBIN, PH.D., *Dean of the Graduate School*

HENRY B. STEVENS, A.B., *Director of the General Extension Service*

LEWIS C. SWAIN, M.F., *Acting Alumni Secretary*

ISAAC N. THUT, PH.D., *Acting Director, Bureau of Appointments*

RUTH J. WOODRUFF, PH.D., *Dean of Women*

ALBERT F. YEAGER, PH.D., *Associate Director of the Biological Institute*

* On leave of absence.

THE UNIVERSITY FACULTY AND STAFFS *

ENGELHARDT, FRED, *President of the University*

Ph.B., Yale, 1908; A.M., Columbia, 1915; Ph.D., 1924; LL.D., University of Maine, 1940. Graduate study, Yale university, 1908–09; Harvard university, summers, 1909–10; University of Pennsylvania, 1916–17. Assistant instructor, Yale university, 1908–09; teacher and principal, public schools, New York, and private schools, Pennsylvania and Illinois until 1917; military service, 1917–19; inspector, elementary education, New York State department of education, 1919; director, Bureau of Administration, Pennsylvania State department of education, 1919–22; assistant dean in charge, College of Liberal Arts, University of Pittsburgh, 1922–24; professor of educational administration, College of Education, University of Minnesota, 1924–37. Present position, 1937–

BATCHELDER, LYMAN J., *Instructor Emeritus in Mechanical Engineering, Woodshop*

Perkins and Bancroft, architects, Haverhill, Mass., 1891–93; Batchelder and Guimon, store and bank fixtures, 1893–97; superintendent, mill and box shop, 1897–1900; foreman, Haverhill Wood Heel company, Haverhill, Mass., 1900–03; foreman, woodshop, to chief draftsman, Laconia Car company, Laconia, N. H., 1903–15. Instructor in mechanical engineering, woodshop, 1915–40; present position, 1940–

BAUER, GEORGE N., *Professor Emeritus of Mathematics*

B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898; Ph.D., Columbia university, 1900; Goettingen, Germany, 1907–08. Principal of high school, Montevideo, Minn., 1894–95; instructor in mathematics, University of Iowa, 1895–98; instructor, associate professor, professor, chairman of department of mathematics, University of Minnesota, 1900–20. Associate professor of mathematics, 1924–28; acting dean of men, 1928–29; professor of statistics, and officer in charge of freshmen, 1928–39; professor of mathematics, 1939–42; present position, 1942–

HENDERSON, OREN V., *Registrar Emeritus*

Valparaiso university. Purchasing agent, New Hampshire college, 1914–20; executive secretary and registrar, 1920–21; registrar, 1921–39; present position, 1939–

MACFARLANE, JAMES, *Instructor Emeritus in Floriculture*

Dr. Bell's Collegiate High, London, 1880. Royal Horticultural Society's Experimental station, 1888. Work in private estates and commercial greenhouses in England, Germany, Belgium, France, Italy

* As of January 31, 1943, for the period February 1, 1942, to January 31, 1943.

and New York, 1888–1915. Instructor in floriculture and florist of the Agricultural Experiment station, 1915–40; present position, 1940–

SMITH, MELVIN M., *Associate Professor Emeritus of Chemistry*
A.B., Colby college, 1890; A.M., *ibid.*, 1893. Submaster, 1898–1911 and headmaster 1911–16, Dover, New Hampshire, high school. Instructor in chemistry, 1917–21; assistant professor of chemistry, 1921–30; associate professor of chemistry, 1930–39; present position, 1939–

ABELL, MAX F., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, Agricultural Experiment Station, and Economist (Farm Management), Extension Service*
B.S., Cornell university, 1914; Ph.D., *ibid.*, 1924. Graduate student, Ohio State university, 1914–15. Student assistant, Cornell university, 1915–17; instructor and assistant professor, Connecticut Agricultural college, 1917–20; assistant professor, Massachusetts Agricultural college, 1920–26. Present position, 1926–

ADAMS, ELOI A., *Agricultural Agent in Strafford County*
B.S., University of New Hampshire, 1918. Practical farmer since 1918. Service department, 1919–28; present position, 1928–

ADAMS, JEAN, *Library Assistant*
B.A., University of New Hampshire, 1941. Present position, February 1, 1942–June 30, 1942.

AHERN, CORNELIUS J., *Agricultural Agent in Cheshire County*
B.S., University of New Hampshire, 1934. General Ice Cream corporation, 1934–36. Acting agricultural agent in Cheshire county, Extension service, 1936; present position, 1937–

ALEXANDER, NORMAN, *Dean of Men and Associate Professor of Economics*
B.A., University of North Dakota, 1919; M.A., *ibid.*, 1920; LL.B., Yale university, 1922; Ph.D., Columbia university, 1931. Professional study, second semester, 1940–41. Carnegie Teaching fellow, Columbia university, 1924–25. Principal of schools, Clyde, North Dakota, 1915–17. Instructor in economics, 1922–24; assistant professor, 1925–28; associate professor, 1928–29; present position, 1929–

ALLEN, FRED E., *Assistant Professor of Veterinary Science and Veterinarian, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; D.V.M., Ohio State university, 1936. Student instructor, F.E.R.A. program, Ohio State university, 1934–35; junior veterinarian, U.S.B.A.I., Columbia, South Carolina, 1936–37; veterinary food inspector, Columbus, Ohio, Board of Health, 1937–1940. Instructor in poultry husbandry and assistant poultry pathologist, Agricultural Experiment station, 1940–41; present position, 1941–

ANDERSON, CHARLOTTE K., *Order Librarian*
B.A., University of Michigan, 1935; B.A. in L.S., *ibid.*, 1936. Library assistant, McGregor Public library, Highland Park, Mich., 1936–39; circulation librarian, Colby Junior College library, New London, N. H., 1939–43. Present position, February 1, 1943–

ANDREWS, ERMA L., *Assistant in Zoölogy*
B.A., University of New Hampshire, 1926; M.S., *ibid.*, 1941. Teacher, Milford, New Hampshire, High school, 1926–36; supervisor, Orchard Home school, summer, 1937. Secretary to officer in charge of freshmen, University of New Hampshire, 1938–39; present position, 1939–

ANDREWS, OLGA, *Nurse, Hood House*
R.N., Forest Hills, Massachusetts, Hospital, 1921. Field work, Laurel hospital, 1921; head nurse, White Rock, N. C., 1921–25. Present position, October 1, 1942–December 26, 1942. (Resigned.)

ATKINSON, EDWARD R., *Assistant Professor of Chemistry*
B,S., Massachusetts Institute of Technology, 1933; Ph.D., *ibid.*, 1936. Assistant and teaching fellow, Massachusetts Institute of Technology, 1933–36; instructor in chemistry, Trinity college, 1936–38. Present position, 1938–

AUERBACH, EUGENE K., *Alumni Secretary and Director of the Bureau of Appointments*
B.A., University of New Hampshire, 1928; M.B.A., Harvard Graduate School of Business Administration, 1930; graduate study, Harvard Graduate School of Education, summer, 1937; Harvard Graduate School of Business Administration, 1939. Warehouse superintendent, The Great Atlantic and Pacific Tea company, 1930–35; assistant to the President, H. Tabenkan company, 1935–36. Assistant director, bureau of appointments, 1936; acting alumni secretary and acting director of the bureau of appointments, 1936–37; present position, 1937– (Entered military service, March 21, 1942.)

AURAND, LEONARD W., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., Pennsylvania State college, 1941. Present position, 1941–June 30, 1942. (Resigned.)

AYER, PERLEY F., *Field Assistant and Specialist in Rural Organization and Recreation, Extension Service*
B.S., University of New Hampshire, 1922; Cornell university, 1935–36. Teacher and farmer at Country Life academy, Star, North Carolina, 1922–24; teacher, farm manager, and supervisor of boys' work at Pleasant Hill academy, Pleasant Hill, Tennessee, 1924–27. Boys' and Girls' Club agent in Merrimack County, 1927–36; instructor in agricultural economics and specialist in rural organization and recreation in the Extension service, 1936–39; present position, 1939–August 17, 1942. (Resigned.)

BABB, ANITA N., *Home Demonstration Agent in Rockingham County*
Diploma, Boston School of Domestic Science; certificate, dietetics training, Wilmington, Delaware; certificate, dietetics training, Boston, Massachusetts. Dietitian, Springfield, Mass., three years; teacher, Bangor, Maine, High school, one year; dietitian, Westfield, Mass., two and one-half years; dietitian, Camp Big Pine, eleven summers; home demonstration agent, Maine, three years; teacher, Spellman seminary, two years. Present position, 1934–

BABCOCK, DONALD C., *Professor of History*
B.A., University of Minnesota, 1907; M.A., *ibid.*, 1908; S.T.B., Boston university, 1912. Ministry, 1909–19. Assistant professor of history, 1918–21; associate professor of history and political science, 1921–25; present position, 1925–

BABEL, WILLIAM K., *Graduate Assistant in Botany*
B.S., University of Maine, 1941. Present position, 1941–June 30, 1942. (Resigned.)

BACHELDER, JOSEPH E., JR., *Associate Professor of Sociology*
B.A., Westminster college, 1933; Ph.D., Yale university, 1937. Research assistant in sociology, Institute of Human Relations, Yale university, 1934–36; Carnegie fellow, *ibid.*, 1933–34, and a fellow, 1935–36. Instructor in sociology, 1936–39; assistant professor of sociology, 1939–42; present position, 1942–

BARRACLOUGH, KENNETH E., *Assistant Professor of Forestry and Forester, Extension Service*
B.S., New York State College of Forestry, Syracuse university, 1921; M.F., Harvard university, 1940. Blister rust agent with Bureau of Plant Industry, Rockingham county, New Hampshire, 1922–26; forester for Federal Emergency Relief Administration in the Northeastern States, office of Federal Extension service, April–June, 1935. Present position, 1926–

BARRATT, RAYMOND W., *Graduate Assistant in Botany, Agricultural Experiment Station*
B.S., Rutgers university, 1941. Present position, 1941–

BARSTOW, CAROLINE O., *Library Assistant*
Present position, 1916–

BARTON, PHILIP S., *Assistant Professor of Applied Farming*
B.S., University of New Hampshire, 1928; M.Ed., *ibid.*, 1938. Submaster and agricultural teacher, Colebrook academy, Colebrook, New Hampshire, 1928–34; headmaster, Weare, New Hampshire, High school, 1934–39. Instructor in agriculture—non-degree curriculum, applied farming, 1939–41; present position, 1941–

BAUER, NORMAN, *Assistant Professor of Chemistry*
B.S., University of California, 1937; M.S., University of Michigan; Ph.D., *ibid.*, 1941 Teaching fellow, University of Michigan, 1937–40;

Eastman Kodak research fellow, 1940–41; research associate, 1941–42. Present position, 1942–

BEANE, DORIS, *Assistant Registrar*
A.B., Smith college, 1919; M.A., Columbia university, Teachers college, 1942. Stenographer, College of Technology, University of New Hampshire, 1923–26; secretary to the president, 1926–39; present position, 1939–

BECKWITH, MARION C., *Instructor in Physical Education for Women*
A.B., Oberlin college, 1935; M.Ed., University of New Hampshire, 1937. Graduate assistant in the department of physical education for women, 1935–37; present position, 1937–

BEECHER, MYRTIS E., *Home Demonstration Agent in Hillsborough County*
Graduate, Framingham Normal school, 1919; B.S., Framingham Teachers college, 1941. Teacher, Gardner, Mass., 1919–20; executive secretary, Girls' club, Gardner, 1920–24; home service department, Washburn Crosby company, 1924–26. Present position, 1926–

BEGG, JEANIE, *Instructor in English and University Editor*
A.B., Mt. Holyoke college, 1917; American Academy of Dramatic Art, 1917–18. Instructor, Wheaton college, 1918–19; legitimate theater; dramatic radio broadcasting; staff writer; free lancing; secretary to city editor and city desk assistant, New York Herald Tribune, 1934–39; assistant to director of News service, Dartmouth college, 1939–42. Present position, September 14, 1942–

BEGGS, ANN F., *Assistant Professor of Home Economics and Economist (Home Management), Extension Service*
Nasson institute, 1913–15; University of Chicago, 1927. Teacher, Hopkinton, N. H., 1915–16; Rochester, N. H., 1916–17. Emergency home demonstration agent, Hillsborough county, 1917–19; home demonstration agent, Hillsborough county, 1919–20; assistant state home demonstration leader, 1922–29; present position, 1929–

BENNETT, FREDERICK D., *Assistant Professor of Physics*
B.A., Oberlin college, 1937; M.Sc., Pennsylvania State college, 1939; Ph.D., *ibid.*, 1941. Graduate assistant, Pennsylvania State college, 1937–41. Instructor in physics, 1941–42; present position, 1942–

BERG, HARRY D., *Assistant Professor of History*
B.A., Iowa State Teachers college, 1931; M.A., University of Iowa, 1936; Ph.D., *ibid.*, 1940. Teacher, Monticello (Iowa) public schools, 1931–36; University High school, Iowa City, Iowa, 1936–40; assistant, University of Iowa, 1937–40. Present position, 1940–

BERGETHON, BJÖRNAR W., *Associate Professor of Music*
B.M., Bush Conservatory of Music, 1929; A.M., Indiana university, 1936. Assistant supervisor of music, public schools, Mitchell, South Dakota, 1929–32; supervisor of music, Greencastle public schools, Ind.,

1932–39; assistant professor of school music education, head of department and conductor university band and orchestra, DePauw university, Greencastle, Ind., 1932–39. Assistant professor of music, 1939–42; present position, 1942–

BERMAN, MILTON, *Assistant in Music*
B.S., New York university, 1940; M.A., *ibid.*, 1941. Present position, 1941–42.

BERZUNZA, JULIO, *Assistant Professor of Languages*
B.A., University of Oklahoma, 1921; M.A., University of Illinois, 1923. Assistant in Spanish, University of Oklahoma, 1919–21; assistant in Romance languages, University of Illinois, 1921–25; instructor in Spanish and Italian, University of Maine, 1926–28. Present position, 1928–

BINGHAM, SYLVESTER H., *Assistant Professor of English*
A.B., Dartmouth college, 1922; A.M., Harvard university, 1929; Ph.D., Yale university, 1937. Master, Taft school, 1926–28; instructor and assistant professor, Rollins college, 1928–33. Present position, 1936–

BISBEE, HARLAN M., *Associate Professor of Education*
A.B., Bowdoin college, 1898; A.M., Harvard university, 1905. Assistant, Rumford Falls, Maine, High school, 1898; principal, Brewer, Maine, High school, 1899–1904; principal, Robinson seminary, Exeter, N. H., 1905–28. Assistant professor of education, 1928–30; present position, 1930–

BITZ, NAOMI, *Supervisor of Hood House*
R.N., Graduate, Lankenau Hospital, Philadelphia, Pennsylvania. Instructor, directress of nurses, assistant hospital superintendent, Somerset Hospital, Somerville, New Jersey, 1929–41. Present position, January 6, 1942–September 1, 1942. (Resigned.)

BLEWETT, EDWARD Y., *Dean of the College of Liberal Arts*
B.A., University of New Hampshire, 1926; M.A., Ohio State university, 1940. Ginn and company, Boston, 1926–27. Alumni secretary, 1927–29; alumni secretary and executive assistant, 1928–29; executive secretary, 1929–37; chairman, committee on summer school, 1938, 1939; assistant to the president, 1937–39; acting dean of the College of Liberal Arts, 1939–40; present position, 1940– (Entered military service, July 1, 1941.)

BLOOD, EDWARD J., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1935. U. S. Olympic team, Lake Placid, 1932; Germany, 1936. Present position, 1936–

BLOOD, PAUL T., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*
B.S., New Hampshire college, 1921; M.S., University of New Hampshire, 1924. Graduate assistant in horticulture, University of New

Hampshire, 1921–24. Granite State Nurseries, Exeter, N. H., 1924–28. Present position, 1928–

BODWELL, WALTER A., *Assistant Club Agent in Rockingham County*
B.S., University of New Hampshire, 1941. Present position, 1941–January 31, 1943. (Resigned.)

BOURNE, ELIZABETH, *Club Agent in Rockingham County*
Diploma, Framingham Normal school, 1924. Teacher, household arts, Oak Bluffs, Mass., 1924–26. Present position, 1926–

BOWEN, IRMA G., *Assistant Professor of Art*
B.S., University of Rochester, 1925; graduate of Mechanics Institute, Rochester, New York, 1911; Teachers college, Columbia university, 1915–17. Study, Boston Museum of Fine Arts; Grace Cornells' Art school; and Fellowcrafter's school, Boston; Universal School of Handicrafts, 1937. Teacher, Mechanics Institute, 1911–15; New York Institute for the Blind, 1915–16; University of Nebraska, 1917–18; University of Louisiana, 1918; government service, 1918–20; director of training shop, Fashion Park Clothing factory, 1920. Instructor in home economics, 1920–27; assistant professor of home economics, 1927–42; present position, 1942–

BOWLER, EDMOND W., *Professor of Civil Engineering*
S.B. in Sanitary Engineering, Massachusetts Institute of Technology, 1914. Assistant, Massachusetts Institute of Technology, 1914–15; topographer, U. S. Geological survey, 1913, 1915, 1916; second and first lieutenant, Engineer corps, U. S. A., Canal Zone, 1917–19; engineering expert, Boston law firm, 1919–20; instructor, Massachusetts Institute of Technology Summer camp, 1926, 1929. Assistant professor of mathematics, 1920–27; assistant professor of civil engineering, 1927–28; associate professor, 1928–31; present position, 1931–

BRACKETT, THELMA, *Librarian*
A.B., University of California, 1915; certificate, California State library, 1920. Assistant, Fresno County library, Fresno, Calif., 1920; assistant librarian, San Luis Obispo County library, San Luis Obispo, Calif., 1921–22; librarian, Siskiyou County library, Yreka, Calif., 1922–25; librarian, Newark (New Jersey) museum, 1925–30; assistant to editor, *Magazine Antiques*, 1930–31; librarian, New Hampshire State library, 1933–42. Present position, September 1, 1942–

BRADLEY, R. CLAUDE, *Assistant Professor of Poultry Husbandry and Poultryman, Extension Service*
A.B., B.S., B.S. Educ., Central Missouri State Teachers college, 1920; M.S., Cornell university, 1921; Ph.D., *ibid.*, 1926. Instructor in residence and extension teaching in poultry husbandry, Cornell university, 1921–26; research specialist for Pacific Egg producers, New York City, 1927; Manager, Garber Leghorn farm, Enid, Oklahoma, 1927–31. Present position, 1931–

BRECKENRIDGE, WALTER F., *Assistant County Agent in Forestry*
B.S., New York State college of Forestry, 1935. Eight years as forester with N. H., U. S. Forest Service, and Society for Protection of N. H. Forests. Present position, 1941–

BREEN, ROBERT E., *Graduate Assistant in Chemistry*
B.S., Lebanon Valley College, 1941. Present position, 1941–

BRENNAN, ELIZABETH D., *Graduate Assistant in Physical Education for Women*
B.S., Boston university, Sargent college of physical education, 1942. Present position, 1942–November 30, 1942. (Resigned.)

BREON, THEODORE F., *Assistant County Agent in Forestry, Carroll County*
B.S., Pennsylvania State college, 1929; graduate study, Yale School of Forestry, 1935–36. Cultural foreman and forester, U.S.D.A., 1933–38; resident superintendent, Hopkins Memorial Experimental forest, Williamstown, Mass., 1939–41. Present position, November 18, 1942–

BRETT, WESLEY F., *Instructor in Art*
B.Ed., Keene Teachers college, 1937; graduate study, University of New Hampshire, summers 1941, 1942. Instructor, Farmington High school, 1937–39; Lisbon High school, 1939–42. Present position, 1942–

BREWER, WILMA D., *Assistant Professor of Home Economics and Assistant Home Economist, Agricultural Experiment Station*
B.S., Kansas State college, 1935; M.S., State College of Washington, 1939. Teacher, St. George (Kansas) Rural High school, 1935–37; instructor, Simpson college, Indianola (Iowa), 1939–40. Instructor in home economics, 1940–42; present position, 1942–

BREWSTER, DOROTHY L., *Club Agent-at-Large*
B.S., University of New Hampshire, 1941. Instructor, home economics, Newmarket High school, 1941–42. Present position, January 1, 1943–

BROWN, FRED H., *Staff Sergeant, Detached Enlisted Men's List U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. army, 1915; service in A.E.F., France, from 1917; in action near Lunéville, Lorraine, August, 1918; participated in battles of St. Mihiel and the Meuse-Argonne, September and October, 1918; promoted sergeant, 1919; service on the Rhine, 1919; returned to the United States, 1922. R.O.T.C., University of New Hampshire, 1924; staff sergeant, 1937–

BUFFINGTON, ALBERT F., *Assistant Professor of Languages*
A.B., Bucknell university, 1928; A.M., Harvard university, 1932; Ph.D., *ibid.*, 1937. University of Berlin, Germany, summer 1926; University of Pennsylvania, Lauber Fellowship in German, 1930;

University of Pittsburgh, Fellowship in German, 1930; University of Chicago Fellowship, 1930. Part-time instructor in German, Bucknell university, 1927–28; head of German department, Central High school, Scranton, Pa., 1928–30; part-time instructor in German, Harvard university, 1930–37. Instructor in languages, 1937–39; present position, 1939–

BURT, EMMA W., *Assistant University Physician*
B.S., Monmouth college, 1935; M.D., Rush Medical school, 1939. Rotating internship, Swedish Covenant hospital, Chicago, Ill., 1939–40; American Red Cross Blood Donor service, Detroit, Mich., 1942. Present position, 1942–

CARLISLE, WINNIFRED A., *Home Demonstration Agent in Coos County*
B.S., University of New Hampshire, 1936. Clerk, University of New Hampshire, 1936–37; assistant to home demonstration agent, Hampshire County (Mass.) Extension service, 1938. Assistant home management supervisor, Farm Security administration, 1939. Present position, 1940–

CARROLL, HERBERT A., *Associate Professor of Psychology*
A.B., Bates college, 1923; A.M., Brown university, 1928; Ph.D., Columbia university, 1930. Instructor, James Millikin university, 1923–24; public school teaching and administration; Research assistant, Columbia university, 1929–30; assistant professor, University of Minnesota, 1930–36; visiting professor, Northwestern university, summer 1938; University of Maryland, summer 1940; Columbia university, summer 1941. Assistant professor of psychology, February 1–June 30, 1941; present position, 1941–

CASE, GEORGE W., *Dean of the College of Technology, Director of the Engineering Experiment Station, and Professor of Mechanical Engineering*
B.S. in C.E., Purdue university, 1905; M.C.E., Cornell university, 1912. Assistant professor of civil engineering, Purdue, 1907–13; assistant professor of sanitary engineering, 1913–14, associate professor of sanitary engineering, 1914–16, professor of sanitary engineering, 1916–22, University of Pittsburgh. Chief engineer, American City Engineering company, 1920–25. Dean of the College of Technology and professor of mechanical engineering, 1925–29; professor of civil engineering, 1926–29; present position, 1929– (Entered government service, November 4, 1940.)

CASEY, JOSEPH A., *Sergeant, Detached Enlisted Men's List, U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. Army, 1934; promoted corporal, 1936; promoted sergeant, 1937; stationed Fort H. G. Wright, N. Y., February, 1934 to November, 1939. Present position, 1939–September 15, 1942. (Transferred.)

CASWELL, HELEN S., *Nurse, Hood House*
R.N., Wentworth hospital, Dover, N. H., 1931. Head nurse, Wentworth hospital, 1932–33; supervisor, Huggins hospital, 1940–42; Carroll County hospital, 1942. General nurse, Hood house, 1934, 1935, 1936, 1941; present position, October 10, 1942–

CAUGHEY, ROBERT A., *Research Assistant Professor of Industrial Engineering*
B.S., University of New Hampshire, 1935; M.S., Massachusetts State college, 1937. Research assistant in industrial engineering, 1937–41; present position, 1941–

CAVANAUGH, LILLIAN V., *Nurse, Hood house*
R.N., Union hospital, Lynn, Mass., 1933. Frisbie Memorial hospital, Rochester, N. H.; Union hospital, Lynn, Mass.; New England Hospital for Women and Children, Roxbury, Mass.; Lynn hospital, Lynn, Mass. Present position, October 1, 1942–

CAWTHORNE, TED H., *Lieutenant Colonel, Infantry, Associate Professor of Military Science and Tactics*
U. S. Army officer, 1917–. Assistant professor of Military Science and Tactics, City College of New York, 1923–28. Present position, 1941–

CHADWICK, DAVID H., *Assistant in Chemistry*
B.S., University of New Hampshire, 1940. Graduate assistant in chemistry, 1940–41; present position, 1941–42.

CHAPMAN, DONALD H., *Associate Professor of Geology*
B.A., University of Michigan, 1927; M.A., *ibid.*, 1928; Ph.D., *ibid.*, 1931. Professional study, 1942–43. Assistant in geology, University of Michigan, 1926–28; instructor in geology, Dartmouth college, 1928–30; part-time instructor in geology, University of Michigan, 1930–31; visiting professor of physiography and meteorology, department of geography of the school of geology, Louisiana State university, second semester, 1937–38. Instructor in geology, 1931–36; assistant professor of geology, 1936–41; present position, 1941–

CHARLES, T. BURR, *Professor of Poultry Husbandry and Poultry Husbandman, Agricultural Experiment Station*
B.S., Cornell university, 1915; M.S., *ibid.*, 1938. Principal, graded schools, Alpine, N. Y., 1909–10; assistant and instructor, Cornell university, 1913–16. Practical poultryman in New York state, 1916–20, 1923–26. Instructor and assistant professor, Pennsylvania State college, 1920–23; associate professor, 1926–28. Present position, 1928–

CHASE, MALCOLM J., *Captain, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
B.S., University of New Hampshire, 1932. New Hampshire State Highway department, 1932–41. Present position, September 28, 1942–

CLAPP, HENRY S., *Instructor in Ornamental Horticulture, Supervising Landscape Architect, Assistant Horticulturist in Home Gardening (Ornamental), Extension Service, and Assistant Horticulturist, Agricultural Experiment Station*
B.S., Cornell university, 1931; M.S., *ibid.*, 1939; graduate study, Harvard School of Landscape Architecture, 1935–36; Harvard university, 1939–40. Nurseryman, Long Island State Park commission, Islip, New York, 1930. Instructor in ornamental horticulture and supervising landscape architect, 1931–41; present position, 1942–

COLBURN, HAZEL A., *Assistant Club Agent in Hillsborough County*
B.S., University of New Hampshire, 1935. Present position, 1935–

COLBY, STANLEY W., *Agricultural Agent in Sullivan County*
B.S., University of New Hampshire, 1934; graduate study, Cornell university, summer, 1939. Research field assistant, University of New Hampshire, July to December, 1934; county agent, Windsor County Farm bureau and Vermont Extension service, 1934–40. Present position, 1940–

COLOVOS, NICHOLAS F., *Assistant Professor of Animal Husbandry and Assistant in Animal Husbandry, Agricultural Experiment Station*
B.S., University of New Hampshire, 1927; M.S., *ibid.*, 1931; graduate study, Cornell university, 1938–39. Present position, 1928–

CONKLIN, JAMES G., *Assistant Professor of Entomology and Assistant Entomologist, Agricultural Experiment Station*
B.S., Connecticut Agricultural college, 1926; M.S., University of New Hampshire, 1929; Ph.D., Ohio State university, 1941. U.S.D.A., Bureau of Entomology, 1926–28. Graduate assistant, Ohio State university, 1929–31. Field assistant, U.S.D.A., Bureau of Entomology, summer, 1930. Instructor in entomology and assistant entomologist of the Agricultural Experiment station, 1931–39; present position, 1939–

CONON, OLGA, *Instructor in Economics*
B.A., University of New Hampshire, 1939; M.Ed., *ibid.*, 1941; graduate study, New York university, summer 1942. Assistant, summer school, 1939; graduate assistant in economics, 1939–41; present position, 1941–

COPPLESTONE, WESLEY, *Assistant in Music*
A.B., Boston university, 1931. Graduate study, Boston university, 1931–33. Private teacher of singing, concert singer. Present position, 1941–

CORBETT, ALAN C., *Instructor in Poultry Husbandry and Assistant Poultry Pathologist, Agricultural Experiment Station*
B.S., University of Maine, 1936; M.S., *ibid.*, 1937; D.V.M., Michigan state college, 1940. Instructor in bacteriology, Michigan State college, 1940–41. Present position, 1941–

CORNTHWAITE, SCHUYLER E., *Graduate Assistant in History*
A.B., Dartmouth college, 1935; LL.B., Albany Law school, 1938. Graduate study, Albany State Teachers college, summer 1940; University of New Hampshire, 1940–41. Employed by law firm, 1938–40. Present position, 1941–September 1, 1942. (Resigned.)

CORTEZ, EDMUND A., *Assistant Professor of English*
B.A., Taylor university, 1923; B.O., Asbury college, 1924; B.D., Asbury Theological seminary, 1925; M.A., Columbia university, 1926; Ed.M., Harvard university, 1927; graduate study, Columbia university, summers of 1925, 1926; Louisiana State university, first semester, 1940–41. Organizer and director of social-religious groups, Taylor university, 1921–23; associate in dramatics and public speaking, Asbury college, 1924–25; part-time instructor in declamation, Phillips Exeter academy, 1928–33. Instructor in English, 1927–29; present position, 1929–

COULTER, CHARLES W., *Professor of Sociology*
B.A., University of Toronto, 1908; B.D., Victoria college, 1909; M.A., Yale university, 1910; Ph.D., *ibid.*, 1914. Professional study, first semester, 1941–42. Assistant in economics, Yale university, 1914; instructor in sociology, Western Reserve university, 1915–19; assistant professor, Western Reserve university, 1919–23; exchange professor, University of Nanking, fall semester, 1922–23; Princeton-in-Peking lecturer, University of Peking, spring semester, 1922–23; Summer schools: Lakeside, 1926, 27; Hampton institute, 1928; Western Reserve university, 1929; visiting professor to universities of South Africa under Carnegie corporation, 1929–30; professor of sociology, Ohio Wesleyan university, 1923–34. Present position, 1934–

CRECELIUS, H. GILBERT, *Instructor in Bacteriology*
B.A., University of South Dakota, 1934; M.A., *ibid.*, 1937; Ph.D., Yale university, 1941. Bacteriologist, South Dakota Health Laboratory, 1934–35, 1936–37; research director, South Dakota State Planning Board, 1935–36. Present position, 1941– (Entered military service, July 1, 1942.)

CRITTENDON, LORRAINE, *Graduate Assistant in Music*
B.M., Yale University School of Music, 1941. Graduate study, Norfolk Music School of Yale university, summer 1941. Private teaching. Present position, 1942–

CUTTER, ARTHUR H., *Assistant County Agent in Forestry, Carroll County*
B.S., University of New Hampshire, 1936. Technical advisor, New England Forest Emergency project, 1938–41. Present position, July 27, 1942–November 18, 1942. (Resigned.)

DAGGETT, ALBERT F., *Associate Professor of Chemistry*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1930; Ph.D., Columbia university, 1934. Instructor, University of New Hampshire, 1928–31; research associate, Columbia university, first semester,

1934–35; instructor, Hunter college, second semester and summer session, 1934–35. Instructor in chemistry, 1935–37; assistant professor of chemistry, 1937–41; present position, 1941–

DAGGETT, G. HARRIS, *Assistant Professor of English*
A.B., Cornell university, 1928; M.A., *ibid.*, 1929; Ph.D., University of North Carolina, 1941. Instructor, College of the City of New York, 1933–36; summers 1934–41; University of North Carolina, 1936–41; University of Florida, 1941–42. Present position, 1942–

DART, J. DORIS, *Assistant Librarian and Cataloguer*
B.A., McGill university, 1921; graduate student, Yale university, 1921–23; certificate, Pratt Institute School of Library Science, 1925. Graduate study, second semester, 1941–42. Cataloguer, Yale university library, 1926–29. Acting librarian, Feb. 6–March 21, 1932, first semester, 1939–40, July–August, 1940; head cataloguer, 1929–38; present position, 1938–

DAVIS, HENRY A., *Instructor in Agricultural and Biological Chemistry and Assistant in Agricultural and Biological Chemistry, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1934. Graduate assistant in agricultural and biological chemistry in the Agricultural Experiment station, 1932–34; present position, 1934–

DAVIS, MARION S., *Home Demonstration Agent in Sullivan County*
B.E., Keene Normal school, 1929. Teacher of home economics, Springfield, Vermont, High school, 1929–37. Present position, 1937–

DAWSON, CHARLES O., *Assistant Professor of Civil Engineering*
B.C.E., Ohio State university, 1930; M.S., *ibid.*, 1940; study, Massachusetts Institute of Technology, summer, 1938. Registered Professional Civil Engineer and Registered Surveyor, State of Ohio. Instructor, Ohio State university, Civil Engineering Summer camp, 1940. Instructor in civil engineering, 1930–40; present position, 1940–
(Entered military service, September 1, 1942.)

DEGLER, CARROLL M., *Assistant Professor of Economics*
A.B., University of Kansas, 1925; M.B.A., New York university, 1927; graduate study, Columbia university, summers, 1929, 31, 32 and 33. Student assistant, University of Kansas, 1923–25; graduate study and assistant instructor, New York university, 1927–28 and 1936–37. Instructor in economics, 1928–36; present position, 1936–

DEMOS, MILTIADES S., *Assistant Professor of Mathematics*
B.S., Robert college, Constantinople, Turkey, 1922; Ph.D., Harvard university, 1926. Sheldon Traveling fellow of Harvard university, Munich, Germany, 1926–27. Instructor, Harvard university, 1927–28; instructor, Columbia university, 1928–31. Present position, 1931–

DICKERMAN, EDMUND H., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1932. Employed by Arthur S.

Brown Manufacturing Company, Tilton, New Hampshire, 1937–41. Research assistant in the engineering experiment station, 1935–37; present position, 1941–January 31, 1943. (Resigned.)

DOBROVOLNY, CHARLES G., *Assistant Professor of Zoölogy*
B.A., University of Montana, 1928; M.S., Kansas State College of Agriculture and Applied Science, 1933; Ph.D., University of Michigan, 1938. Assistant, University of Montana, 1925–28; instructor, high school, Filer, Idaho, 1928–29; Kansas State college, 1929–35; University of Michigan, 1935–40. Present position, 1940–

DONAHUE, MARIE A., *Instructor in English*
B.A., University of New Hampshire, 1941. Teacher, Berwick academy, 1941–42. Present position, 1942–

DONOVAN, EDWARD T., *Assistant Professor of Mechanical Engineering*
B.S., University of Wisconsin, 1921. Assistant, University of Wisconsin, 1921; assistant and instructor, Purdue university, 1921–24; assistant engineer, Chicago, Milwaukee and St. Paul railway, 1924–26. Present position, 1926– (Entered government service, July 1, 1942.)

DOUGAL, ANTHONY F., *Assistant Professor of Physical Education and Athletics*
B.S., Temple university, 1933; M.A., Columbia university, 1940. Head of Physical Education and Commercial departments, Smethport, Pennsylvania, 1933–36; assistant director of athletics, West Texas State Teachers college, 1937–39. Instructor in physical education and athletics, 1939–41; present position, 1941–

DOUGHERTY, LAWRENCE A., *Assistant Professor of Agricultural Economics and Economist in Marketing, Extension Service*
B.S., Purdue university, 1921; graduate study, University of Michigan, summers, 1922, 26; University of Minnesota, summer, 1928, and spring and summer quarters, 1930; University of New Hampshire, summer, 1932. High school science teacher, Iowa and Indiana, 1921–24; biology teacher, Connerville, Indiana, Senior High school, 1924–26; field agent, Bureau of Plant Industry, U. S. D. A., summers, 1923, 24, 25; assistant professor in science, Montana state normal college, 1927–29. Present position, 1930–

DRUMHELLER, P. FERN, *Graduate Assistant in Botany*
B.S., University of New Hampshire, 1942. Present position, 1942–

DUNN, COLON H., *Instructor in Electrical Engineering*
B.S., John Brown university, 1942; graduate study, University of Cincinnati, 1942. Present position, October 1, 1942–

DUNN, STUART, *Assistant Professor of Botany and Plant Physiologist, Agricultural Experiment Station*
B.S., University of Minnesota, 1923; M.S., Iowa State college, 1925; Ph.D., University of Minnesota, 1931. Assistant in plant physiology, University of Minnesota, 1923–24; fellow in botany, Iowa State

college, 1924–25; instructor in plant physiology, Iowa State college, 1925–26. Instructor in botany and assistant botanist of the Experiment station, 1926–37; assistant professor of botany and assistant botanist, Agricultural Experiment station, 1937–41; present position, 1941–

DuRie, John D., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1938; M.Ed., *ibid.*, 1940. Graduate assistant in physical education and athletics, 1938–40; present position, 1940– (Entered military service, July 1, 1941.)

Eadie, William R., *Assistant Professor of Zoölogy*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1933; Ph.D. Cornell university, 1939. Assistant in zoölogy, University of New Hampshire, 1933–35; instructor in zoölogy, 1935–39; present position, 1939–September 1, 1942. (Resigned.)

Eastman, Ann Louise, *Library Assistant*
B.A., University of New Hampshire, 1942. Present position, June 15, 1942–

Eastman, M. Gale, *Dean of the College of Agriculture and Director of the Agricultural Experiment Station*
B.S., New Hampshire college, 1913; M.S., Cornell university, 1916; Ph.D., *ibid.*, 1931. County agent, Sullivan county, New Hampshire, 1913–14; assistant commissioner of agriculture, State House, Concord, N. H., 1914–15; superintendent, Willow farm, New London, N. H., 1916–18. Assistant professor of agronomy and assistant agronomist of the Experiment station, 1918–25; associate professor of agronomy and associate agronomist of the Experiment station, 1925–29; professor of agricultural economics and associate agricultural economist of the Experiment station, 1929–31; associate dean, 1931–33; dean of the College of Agriculture and professor of agricultural economics, 1933–38; dean of the College of Agriculture and vice-director of the Agricultural Experiment station, 1938–39; present position, 1939–

Eaton, Florence L., *Assistant in Nursing*
R.N., Long Island College hospital, Brooklyn, New York, 1941. Present position, 1941–42.

Eggert, Russell, *Instructor in Applied Farming and Research Assistant in Horticulture, Agricultural Experiment Station*
B.S., Michigan State college, 1929; M.S., *ibid.*, 1939. High school teacher, East Jordan, Mich., 1929–30, Ypsilanti, Mich., 1939–40; Western Michigan Training school, Richland, Mich., 1940–41; Hart High school, Richland, Mich., 1941–42. Present position, September 1, 1942–

Ekdahl, Adolph G., *Associate Professor of Psychology*
D.M.D., Tufts College Dental school, 1912; A.B., Clark college, 1919; A.M., *ibid.*, 1920; Ph.D., Ohio State university, 1925. Assistant and scholar in psychology, Clark university, 1919–20; instructor

in psychology, Syracuse university, 1920–22; assistant professor of psychology, *ibid.*, 1922–23; instructor in psychology, Ohio State university, 1923–25; professor of education, Howard college Summer school, 1926, 27, and 28. Assistant professor of education, 1926–28; associate professor of education and psychology, 1928–29; associate professor of philosophy and psychology, 1929–34; present position, 1934–

ELLIS, ELIZABETH E., *Assistant Professor of Home Economics and Nutritionist, Extension Service*

B.S., Teachers college, Columbia university, 1927; M.A., *ibid.*, 1929. Graduate in home economics, Normal school, Truro, Nova Scotia, 1916; home economics diploma, MacDonald institute, Guelph, Ontario, 1920. Instructor, School of Home Economics, Truro; Halifax Ladies college, Nova Scotia; Soldier Settlement board, Woman's institute, and the Halifax Health center, 1916–27. Present position, 1929–

ELLSWORTH, CLIFFORD C., *Club Agent in Strafford County*

B.S., University of New Hampshire, 1935. Acting Boys' and Girls' club agent in Strafford county, 1938–39; assistant club agent in Rockingham county, 1935–38; 1939–41; present position, 1941–March 21, 1942. (Resigned.)

ENKE, JOSEPH W., *Assistant in Entomology and Research Chemical Assistant in Entomology, Agricultural Experiment Station*

B.S., Ohio State university, 1939; M.S., *ibid.*, 1941; graduate study, *ibid.*, 1941–42. Research assistant in entomology, South Carolina Experiment station, summers 1940, 1941. Present position, 1942–

EPPELSHEIMER, DANIEL S., *Research Professor of Industrial Engineering and Acting Director, Engineering Experiment Station*

B.S., Harvard university, 1932; D.Sc., *ibid.*, 1935. Research metallurgist with the Union Carbide and Carbon Research laboratory, Niagara Falls, N. Y., 1935–38. Research associate professor of industrial engineering, 1938–39; research professor of industrial engineering, 1939–40; present position, 1940–

ERIKSON, ARVAL L., *Assistant Professor of Agricultural Economics, Assistant Agricultural Economist, and Assistant to the Director, Agricultural Experiment Station*

B.S., University of Idaho, 1937; M.S., Iowa State college, 1939; graduate study, *ibid.*, 1939–40. Graduate assistant, Iowa State college, 1937–39; assistant agricultural economist, University of Idaho, 1939; research assistant, Iowa State college, 1939–40. Present position, 1940– (Entered government service, May 15, 1942.)

EVANS, NELL W., *Instructor in Physical Education for Women*

B.S. in P.E., Sargent college of Boston university, 1935; M.Ed. University of New Hampshire, 1937. Graduate assistant in physical education for women, 1935–37; present position, 1937–

FAIRCHILD, EDWARD L., *Assistant Professor of Industrial Engineering*
B.S., University of Michigan, 1932; M.S., *ibid.*, 1942. Electrical engineer, Nash Kelvinator Corporation, Detroit, Mich., 1932–38; head of test department, Apex Electrical Manufacturing company, 1938–40; head of electrical engineering department, Detroit Institute of Technology, 1940–42. Present position, October 1, 1942–

FENTON, AUSTEN W., *Assistant Club Agent in Merrimack County*
B.A., University of New Hampshire, 1932. Coach, Weare High school, 1935–36; field representative and secretary-treasurer, Farm Credit administration, 1938–41. Present position, 1942–

FIELDING, GEORGE B., *Graduate Assistant in Physical Education and Athletics*
B.S., Culver Stockton college, 1940. Present position, 1940–42.

FIRMAN, CHARLES E., *Assistant County Agent, Hillsborough County*
St. Anselm college, 1938–41. Hillsborough County Rural Organization and Recreation Agent, Extension Service and W.P.A. coöperating, 1936–41. Present position, 1941–

FITZ, HARRY M., *Acting Superintendent of Properties*
Member of Plant Maintenance Department, 1921–41; present position, 1941–

FLANDERS, FLORENCE N., *Assistant Cataloguer*
A.B., Vassar college, 1939; B.S., Columbia university, School of Library Science, 1942. Present position, 1942–

FLOYD, JOHN A., *Assistant Professor of Languages*
A.B., Boston university 1928; Diplôme de Français; Degré Supérieur, University of Dijon, France, 1929; M.A., Middlebury college, 1937. Instructor in languages, 1929–39; present position, 1939–

FORBES, GEORGE F., *Assistant in Physics*
B.S., Northeastern university, 1939. Graduate study, Harvard university, 1940–41. Teaching fellow, St. Louis university, 1939–40. Present position, 1941–June 30, 1942. (Resigned.)

FOSS, EDWARD W., *Instructor in Applied Farming*
B.S., University of New Hampshire, 1936; graduate study, Cornell university, summers 1936–38. Teacher, Averill Park (New York) Central school, 1936–39; Walpole (New Hampshire) High school, 1939–42. Present position, August 1, 1942–

FOULKROD, GEORGE M., *Assistant Professor of Agricultural Engineering and Assistant Agricultural Engineer, Extension Service*
B.S., Pennsylvania State college, 1919; B.S. in agricultural engineering, *ibid.*, 1931; M.S. in agricultural education, *ibid.*, 1931. Instructor and assistant professor, Pennsylvania State college, 1919–31. Instructor in agricultural engineering and assistant agricultural engineer in the Experiment station, 1933–36; present position, 1936–

FUNKHOUSER, JAMES A., *Associate Professor of Chemistry*
B.S., Carnegie Institute of Technology, 1925; Ph.D., Ohio State university, 1930. Professional study, first semester, 1941–42. Instructor, Germantown, Ohio, High school, 1925–26; assistant and instructor, Ohio State university, 1926–30. Assistant professor of chemistry, 1930–38; present position, 1938–

GADBOIS, IRENE L., *Instructor in English*
B.A., University of New Hampshire, 1929; M.A., Columbia university, 1930; Ph.D., Boston university, 1935. Assistant, Boston university, 1934–35. Assistant in English, January 1, 1940–January 31, 1941; present position, 1941–

GAGE, GEORGE W., *Major, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
A.B., University of Pittsburgh, 1929; M.Ed., *ibid.*, 1938. Principal, Bell Township High school, Salina, Pennsylvania, 1929–32; supervising principal, Parker City schools, Parkers Landing, Pennsylvania, 1932–35; Evans City, Pennsylvania, schools, 1935–36; Zelienople, Pennsylvania, school district, 1936–40. Present position, 1940–

GARLAND, MARTHA L., *Instructor in Home Economics*
B.S., University of New Hampshire, 1939. Student dietitian, State Hospital, Concord, New Hampshire, 1939–40; assistant dietitian, Henry Heywood Hospital, Gardner, Massachusetts, 1940, assistant dietitian, University of New Hampshire Commons, January 1941–June 1941. Acting home demonstration agent, Rockingham county, July, August, 1942. Present position, 1941–

GARMAN, ELIZABETH M., *Graduate Assistant in Zoölogy*
B.S., New Jersey College for Women, 1942. Present position, 1942–

GETCHELL, EDWARD L., *Associate Professor of Mechanical Engineering*
B.S., University of Maine, 1914; E.E., *ibid.*, 1920. Engineering staff, Stone & Webster, 1914–15; assistant superintendent, Cave Welding & Manufacturing company, Boston, 1915–16; submaster, Lawrence academy, Groton, Mass., 1916; principal, Westport High school, 1917. Instructor in mechanical engineering, 1917; in charge of auto mechanics and gas engine section in connection with vocational work at New Hampshire college, United States army training detachment, 1918; acting head of department, 1918–19; assistant professor of mechanical engineering, 1918–29; present position, 1929–

GIBBS, KENNETH E., *Club Agent in Hillsborough County*
B.S., University of Maine, 1923; M.S., Boston university, 1942. State forester, Orono, Maine, summer of 1923; agricultural teacher, Leavitt institute, Turner Center, Maine, 1923–25. Present position, 1925–

GIDDINGS, HORACE A., *Associate Professor of Mathematics*
B.S., University of New Hampshire, 1923; Ph.D., Massachusetts Institute of Technology, 1934. Instructor, University of New Hampshire, 1923–24; University of Vermont, 1924–30; Massachusetts In-

stitute of Technology, 1930–36; assistant professor, Illinois Institute of Technology, 1936–42. Present position, 1942–

GLOVER, LEON C., *Assistant Professor of Entomology and Research Assistant in Entomology, Agricultural Experiment Station*
B.S., University of New Hampshire, 1923; M.S., *ibid.*, 1928; Ph.D., Iowa State college, 1936. Present position, 1928–

GORDON, LURLENE A., *Library Assistant in Charge of Plant and Animal Sciences Library*
B.S., University of New Hampshire, 1941. Teacher, Nute High school, Milton, N. H., 1941–42. Present position, September 3, 1942–

GRABOWSKI, PETER J., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1942. Present position, 1942–

GRANT, ROBERT H., *Assistant Professor of English*
A.B., Bowdoin college, 1933. Student, University of New Hampshire, summers, 1934, 36; M.A., Columbia university, 1940. Teacher, Gardiner, Maine, High school, 1933–36; Laconia, New Hampshire, High school, 1936–37. Instructor in English, 1937–41; present position, 1941–

GRAY, RENA, *Home Demonstration Agent in Belknap County*
B.S., Simmons college, 1916; A.M., Columbia university, 1928. Student, University of Wisconsin, 1916–17; summer school, University of Tennessee, 1938. Home economics teacher, Massachusetts, New Hampshire, and Hawaii, 1917–27. Present position, 1928–

GRIGAUT, PAUL L., *Associate Professor of Languages*
B. ès L., 1926, Certifié de Licence (Sorbonne); Diplômé de l'Ecole du Louvre, 1932. Lycée Henri IV, Paris, 1917–24; University of Paris, Sorbonne, 1924–27, 1931–32; National School of the Louvre Museum, Paris, 1925–27. University of Chicago, second semester, 1940–41. Instructor in languages, 1927–30; assistant professor of languages, 1930–42; present position, 1942–

GRINNELL, HAROLD C., *Associate Professor of Agricultural Economics, Assistant to the Dean, College of Agriculture, and Assistant to the Director, Agricultural Experiment Station*
B.S., Cornell university, 1921; M.S., *ibid.*, 1930; Ph.D., *ibid.*, 1941. Dairy farmer, Broadalbin, New York, 1921–28; field agent, Federal Farm board, 1930–31; acting agricultural economist, University of Vermont, 1931–32. Assistant professor of agricultural economics and assistant agricultural economist in the Agricultural Experiment station, 1932–39; assistant professor of agricultural economics, assistant to the Dean, College of Agriculture, and assistant agricultural economist, Agricultural Experiment Station, 1939–42; present position, 1942–

HADDOCK, JAY L., *Assistant Professor of Agronomy and Agronomist, Extension Service*
B.S., Brigham Young university, 1930; M.S., Massachusetts State

college, 1932; graduate study, Iowa State college, 1939–40, May–November, 1942. Instructor, agronomy department, Massachusetts State college, 1930–35. Present position, 1935–

HALL, CLYDE N., *District County Agent, Extension Service*
B.S., University of Maine, 1923; M.S., University of Vermont, 1941. Teacher, New York, 1923–25; Maine, 1925–28. Milk tester, Mass., 1929–32; New Hampshire, 1932–33. Assistant professor of dairy husbandry and assistant extension dairyman, 1933–41; present position, 1941–

HALL, HARRY H., *Assistant Professor of Physics*
B.S., Union college, 1926; Ph.D., Harvard university, 1934. Instructor, American University of Beirut, 1926–29; instructor and tutor, Harvard university, 1934–37; instructor, *ibid.*, summer, 1935; instructor, Radcliffe college, 1933–35; tutor, *ibid.*, 1935–37; testing equipment development engineer, Western Electric company, 1937–40. Present position, 1940– (Entered military service, September 1, 1942.)

HALL, MARY A., *Club Agent in Cheshire County*
B.Ed., Keene Normal school, 1929. Teacher, high school, Canaan, New Hampshire, 1929–33. Recreation advisor, Cheshire county, 1934–37; present position, 1937–

HALPIN, ROBERT B., *Instructor in Poultry Husbandry, Record of Performance Supervisor and Research Assistant in Poultry Husbandry, Agricultural Experiment Station*
B.S., University of Wisconsin, 1937; graduate study, Iowa State college, 1937–40. Graduate assistant, Iowa State college, 1937–40. Present position, 1941– (Entered military service, September 27, 1941.)

HAM, RUTH S., *Club Agent in Strafford County*
B.S., University of New Hampshire, 1924. Home economics teacher, Ashland, New Hampshire, High school, 1924–25; Portsmouth High school, 1925–27. Home demonstration agent, Strafford county, 1927–33; acting home demonstration agent, Rockingham county, October, 1940–February, 1941; present position, April 20, 1942–

HANSON, ARNOLD E., *Associate Professor of Industrial Education*
Ph.B., University of Wisconsin, 1926; Ph.M., *ibid.*, 1929; Ph.D., *ibid.*, 1940. Supervising principal, Butternut (Wisconsin) public schools, 1922–24; instructor, Madison Vocational school, 1925–27; coördinator, *ibid.*, 1927–40. Industrial Education Survey, February to June, 1940; associate professor of vocational education and supervisor of N.Y.A., 1940–41; present position, 1941–

HARDY, HOWARD C., *Instructor in Physics*
A.B., West Virginia university, 1936; M.S., *ibid.*, 1938; Ph.D., Pennsylvania State college, 1941. Graduate assistant in physics, West Virginia university, 1936–38; Pennsylvania State college, 1938–41;

instructor in R.O.T.C., West Virginia university, 1936–37. Present position, 1941–42.

HARINGA, RAYMOND, *Graduate Assistant in Zoölogy*
A.B., Clark university, 1939; graduate study, Calvin college, Grand Rapids, Michigan, 1939–40. Present position, 1940–42

HARPER, ROBERT H., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., Purdue university, 1940. Present position, 1940–42.

HARTWELL, WILLIAM H., *Assistant Professor of Physics*
B.S., Boston university, 1924; M.A., Wesleyan university, 1927. Assistant in physics, Boston university, 1924–26; assistant in physics, Wesleyan university, 1926–27; instructor in physics, University of Maine, 1927–28; assistant in physics, Harvard university, 1928–29. Instructor in physics, 1929–33; present position 1933–

HARVEY, LASHLEY G., *Assistant Professor of Government*
A.B., William Jewell college, 1925; A.M., Leland Stanford, Jr., university, 1930; Ph.D., Harvard university, 1942. Teacher, social studies, high schools, Missouri, Montana and Wyoming, 1923–29; assistant in political science, Leland Stanford, Jr., university, 1929–30; instructor to associate professor, political science and economics, Adams State Teachers' college, Colorado, 1930–36; Legislative Interim Committees on County Government and State Welfare department, Colorado, 1934. Executive secretary, Bureau of Government Research, 1939–. Assistant professor of government and education, 1938–39; present position, 1939– (Entered military service, July 1, 1942.)

HATCH, CLEON H., *Assistant in Physics*
B.A., Colby college, 1940. Present position, 1942–

HAUBRICH, WILLIAM P., *Assistant Horticulturist in Home Gardening, Extension Service, and Assistant in Horticulture, Agricultural Experiment Station*
B.S., University of New Hampshire, 1939; M.S., *ibid.*, 1941. Graduate assistant in horticulture, 1939–40; assistant in horticulture, Extension service, 1941; present position, January 1, 1942–June 30, 1942. (Resigned.)

HAUSLEIN, JOHN D., *Assistant Professor of Economics*
B.A., Yale university, 1916; M.A., Yale university, 1920. Laboratory assistant in accounting, Yale university, 1917; junior accountant, Whittlesey, Wythes & Wilson, New York city, 1919; field auditor, U. S. Housing corporation, Bridgeport, Connecticut, 1920; instructor in accounting, Yale university, 1921–26. Present position, 1926–

HEANEY, HOWELL J., *Order Librarian*
B.A., Cornell university, 1939; M.A., *ibid.*, 1941; B.S. in L.S., Co-

lumbia university, 1942. Present position, July 15, 1942–November 7, 1942. (Resigned.)

HEINKE, MELVIN L., *Graduate Assistant in Geology, Extension Service*
B.A., Lawrence college, 1941. Present position, 1941–May 31, 1942. (Resigned.)

HEMPLER, ORVAL F., *Graduate Assistant in the Department of Architecture*
B.F.A., University of Colorado, 1938; Master's Certificate, University of Iowa, 1940. Frank Alva Parsons Memorial Scholarship, Paris, France; traveling fellowship, Italy, 1938–39. Instructor, Boulder, Colorado, Art Gallery, summers 1937, 1938; Boulder high school, 1938. Present position, 1941–42.

HENNESSY, WILLIAM G., *Associate Professor of English*
A.B., Boston university, 1916; A.M., Boston university, 1924. Professional study, second semester, 1941–42. Professional stage manager and drama director, 1916, 1919–21; A.E.F., U.S.A., 1917–19; instructor in English and history, Hampton institute, Virginia, 1921; instructor in English and history, Northampton, Mass., high school, 1921–23; associate professor, Boston university, Summer school, 1926 and 1928. Public speaking, coach of debating, 1923–25; director of dramatics, 1923–. Instructor in English, 1923–24; assistant professor of English, 1924–28; present position, 1928–

HEPLER, JESSE R., *Associate Professor of Horticulture and Horticulturist in Home Gardening, Extension Service*
B.S., Pennsylvania State college, 1911; M.S., University of Wisconsin, 1922. Instructor and graduate student in horticulture, University of Wisconsin, 1912–16. Assistant professor of horticulture and assistant horticulturist of the Experiment station, 1917–31; acting head of department of horticulture, 1938–39; associate professor of horticulture and associate horticulturist, Agricultural Experiment station, 1931–41; present position, 1942–

HERR, CLARENCE S., *District County Agent, Extension Service*
B.S., Pennsylvania State college, 1925; M.S., Harvard university, 1930. U. S. Forest service, White Mountain National Forest, N. H., 1920–21; camp director, boys' camp, Shawnee-on-Delaware, Pa., seasons 1923, 24, 25; U. S. Forest service, Allegheny National Forest, Pa., 1925–26; blister rust agent with Bureau of Plant Industry, Hillsborough county, N. H., 1926–28. Assistant county agent in Coos and Grafton counties, 1928–36; acting extension forester, April–June, 1935, January–June, 1939; assistant professor of forestry and assistant extension forester, 1936–41; present position, 1941–

HESS, CARL W., *Instructor in Poultry Husbandry, Record of Performance Supervisor, and Research Assistant in Poultry Husbandry, Agricultural Experiment Station*
B.S., Iowa State college, 1938; M.S., University of Maryland, 1940. Graduate study, University of Maryland, 1940–41. Present position, 1941–September 30, 1942. (Resigned.)

HIGGINS, LEROY J., *Assistant Professor of Agronomy and Assistant Agronomist, Agricultural Experiment Station*

B.S., University of New Hampshire, 1923; graduate study, Cornell university, 1939. Submaster and teacher of agriculture, Walpole, N. H., High school, 1923–25; headmaster and teacher of agriculture, Sunapee, N. H., High school, 1925–27. Instructor in agronomy, University of New Hampshire, 1927–28. Headmaster, Pittsburg, N. H., High school, 1928–29. Instructor in agronomy and assistant agronomist of the Experiment station, 1929–32; present position, 1932–

HILL, HAZEL E., *Assistant Professor of Home Economics and Clothing Specialist, Extension Service*

B.S. in Educ., Framingham State Teachers' college, 1928; M.A., Columbia university, 1941. Teacher, junior high school, high school and evening practical arts school, East Douglas, Mass., 1920–22 and Chicopee, Mass., 1922–26. Present position, 1928–

HITCHCOCK, LEON W., *Acting Dean of the College of Technology and Professor of Electrical Engineering*

B.S., Worcester Polytechnic institute, 1908. Engaged in industrial electrical engineering, 1908–14. Revising and writing courses in electrical railways, practical electricity, electrical transmission and practical mathematics, with the department of university extension, Massachusetts State board of education, 1916–17. Head instructor, electricians' division, New Hampshire college United States army training detachment, 1918. Instructor in electrical engineering, 1910–12; assistant professor, 1912–18; associate professor, 1918–21; professor of electrical engineering, 1921–40; present position, 1940–

HOBAN, MARGARET R., *Assistant Professor and Director of Physical Education for Women*

B.S., Boston university, 1931; graduate of Sargent School for Physical Education, 1925; Roger's School of Dramatic Art, 1927; M.A., Columbia university, 1940. Instructor, Hannah More academy, 1925–27; instructor and director of physical education for women, Thiel college, 1927–30. Director, Camp Marlyn for girls, 1931–. Present position, 1931–

HODGDON, ALBION R., *Associate Professor of Botany and Plant Taxonomist, Agricultural Experiment Station*

B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932; Ph.D., Harvard university, 1936. Graduate assistant in botany, University of New Hampshire, 1930–32; assistant in botany and biology, Harvard university and Radcliffe college, 1932–36. Instructor in botany, 1936–41; present position, 1941–

HOITT, SAMUEL W., *Assistant to the Director, Extension Service*

B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1931; graduate study, Cornell university, 1938–39. Graduate assistant in agri-

cultural economics in the Experiment station, 1929–31; assistant Boys' and Girls' club agent in Rockingham county, 1931–35; assistant state club leader, Extension service, 1935–41; present position, 1941–

HOLDEN, EDWARD W., *Agricultural Agent in Merrimack County*
B.S., University of Maine, 1923. Agricultural agent, Strafford county, Extension service, 1923–24; present position, 1924–

HOLLEY, WINFRED D., *Instructor in Floriculture and Superintendent of Greenhouses*
B.S., Texas Technological college, 1938; M.S., Michigan State college, 1940. Fellow, Michigan State college, 1938–40. Present position, 1940–

HOLMES, G. ALLEN, *Instructor in Applied Farming*
B.S., University of New Hampshire, 1938. Teacher, Cabot (Vermont) high school, and Marshfield (Vermont) high school, 1938–40. Graduate assistant in applied farming, and proctor at Bickford house, 1940–41; present position, 1941–

HOSKEN, DEAN, *Instructor in Agricultural Economics and Research Assistant in Agricultural Economics, Agricultural Experiment Station*
B.A., Mount Holyoke college, 1940, graduate study, Radcliffe college, 1941. Research assistant, Mount Holyoke college, 1941. Present position, 1942–

HOWE, ARTHUR F., *Instructor in Bacteriology*
B.S., Massachusetts State college, 1940; M.S., University of New Hampshire, 1942. Graduate assistant in bacteriology, 1940–42; present position, 1942–

HOWES, HORACE L., *Professor of Physics*
B.S., Syracuse university, 1905; Ph.D., Cornell university, 1915. Instructor in physics, Cook academy, Montour Falls, New York, 1905–10; instructor in physics, Cornell university, 1910–15. Research assistant, Carnegie institution of Washington, 1915–18. Summer research work with Professor Nichols of Cornell on fluorescent radiation, 1918–30. Present position, 1918–

HUDDLESTON, ERIC T., *Professor of Architecture and Supervising Architect of the University*
B.Arch., Cornell university, 1910. Postle and Fisher, Chicago, 1910; S. Cronin, architect, Chicago, 1911; American Terra Cotta company, Chicago, 1911; Pretzinger and Musselman, architects, Dayton, Ohio, 1912–13; Schenk and Williams, architects, Dayton, 1914. Professor of architecture, 1914; supervising architect, 1919; present position, 1919–

HUDON, LILLIAN B., *Manager of the University Dining Hall and Instructor in Home Economics*
B.S., University of New Hampshire, 1926. Teacher of home economics, St. Faith's school, Saratoga Springs, 1926–29; teacher of Latin

and history, *ibid.*, 1927–29. Assistant manager of the university dining hall, 1929–37; present position, 1937–

HUNT, HENRY, *Major, Infantry, Assistant Professor of Military Science and Tactics*
B.S., University of New Hampshire, 1927; graduate study, *ibid.*, summer, 1932; Yale university, 1939–40. Instructor, Noah Wallace school, Farmington, Connecticut, 1930–37; assistant principal, *ibid.*, 1937–40. Present position, 1940–

HUTCHINS, LEHMAN C., *Captain, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
B.S., University of Washington, 1934; M.A., Columbia university, 1939. Assistant, Johns Hopkins university, 1939–40. Instructor, military science and tactics, 1940–41; present position, 1941–October 5, 1942. (Transferred.)

IDDLES, HAROLD A., *Professor of Chemistry*
B.S., Michigan State college, 1918; M.S., University of Iowa, 1921; Ph.D., Columbia university, 1925. Instructor in chemistry, Michigan State college, 1918–20; research assistant in organic chemistry, University of Iowa, 1920–22; instructor in organic chemistry, Columbia university, 1922–29. University of Graz, Austria, summer of 1926. Cutting traveling fellow, research work at University of Manchester, England, and University of Munich, Germany, 1927–28. Present position, 1929–

JACKSON, C. FLOYD, *Director of the Biological Institute and Professor of Zoölogy*
B.A., DePauw university, 1905; M.S., Ohio State university, 1907. Instructor, DePauw university, 1904–05; fellow, Ohio State university, 1905–07. Instructor in entomology, 1908–09; assistant professor of entomology and zoölogy, 1909–10; professor of zoölogy and entomology, 1910–17; professor of zoölogy, 1917–30; Dean of the College of Liberal Arts and professor of zoölogy, 1930–39; present position, 1939–

JACKSON, FREDERICK D., *Associate Professor of Electrical Engineering and University Radio Engineer*
B.S., Pennsylvania State college, 1920; E.E., *ibid.*, 1939. Western Electric company, New York, 1920–21; instructor in school of electrical engineering, Cornell university, 1921–23; radio engineering department of the General Electric company, 1923–24; Philadelphia Electric company, summer 1922; American Telephone and Telegraph company, long lines department, Philadelphia, summer 1925; General Electric company, summer 1929; New England Telephone and Telegraph company, summer 1930. Instructor in electrical engineering, 1924–27; assistant professor of electrical engineering, 1927–39. Present position, 1939–

JEWETT, IRENE E., *Home Demonstration Agent in Cheshire County*
B.E., Keene Normal school, 1932. Teacher, Monroe, New Hamp-

shire, 1932–34. Assistant club agent in Grafton county, 1934–40; present position, 1940–

JOHNSON, ARTHUR W., *Associate Professor of Economics*
Bay Path institute, Normal department, Springfield, Mass.; B.B.A., College of Business Administration, Boston university; M.B.A., *ibid.*, 1929. Certified public accountant, New Hampshire; head of commercial department, Oldtown High school, Oldtown, Maine, 1915–16; head of accounting department, Bay Path institute, 1916–17; instructor in accounting and business mathematics, Medford, Mass., high school, 1917–20; special instructor of accounting, College of Business Administration, Boston university, evening division, 1930–31; secretary-treasurer, State Board of Accountancy, New Hampshire. Instructor in economics, 1920–21; assistant professor of economics, 1921–27; present position, 1927–

JOHNSON, GIBSON R., *Assistant Professor of History*
A.B., Muskingum college, 1916; M.A., Princeton university, 1920; Ph.D., University of Edinburgh, 1922; graduate study, University of Berlin, summer, 1921; University of Chicago, summer, 1931. Associate and professor of religion, Muskingum college, 1922–29; dean of School of Religion, Parsons college, 1929–32. Present position, 1932–

JOHNSON, LAWRENCE A., *Assistant Professor of Dairy Husbandry and Dairyman, Extension Service*
B.S., Michigan State college, 1936; M.S., Rutgers university, 1939. Instructor in dairy husbandry and extension dairyman, 1938–39; present position, 1939–

JOHNSON, WILLIAM A., *Assistant in the Department of Forestry and in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1941. Present position, September 18, 1941–

JOLLY, DAVID, *Librarian*
B.S., George Peabody College for Teachers, 1936; B.S. in L.S., *ibid.*, 1937; graduate study, University of Chicago, summer, 1938; University of Missouri, summers, 1939, 1940. Library interne, Stephens college, 1937–38; librarian, *ibid.*, 1938–40. Acting Librarian, 1940–41; present position, 1941–August 31, 1942. (Resigned.)

JONES, HELEN M., *Assistant in Psychology*
B.A., Wellesley college, 1927; Ed.M., Harvard university, 1942. Assistant, Music department, Wellesley college, 1927–29; teacher, Foote school, New Haven, Conn., 1931–39; executive assistant, Curtis Institute of Music, Philadelphia, 1939–41. Present position, 1942–

JONES, HOWARD R., *Associate Professor of Education and Assistant to the Dean, College of Liberal Arts*
B.S., University of Minnesota, 1933; M.A., *ibid.*, 1934; Ph.D., Yale

university, 1940. Teacher, Sheridan Junior High school, Minneapolis, 1934–36; counselor, *ibid.*, 1936–38; instructor, University of Connecticut, January to June, 1938; teaching assistant, Yale university, 1938–40. Assistant professor of education, 1940–41; counselor and assistant professor of education, 1941–42; present position, 1942–

JUSTICE, CHARLES M., *Assistant Professor of Physical Education and Athletics*

B.A., University of Nebraska, 1932; M.A., University of Nebraska, 1940. Science instructor, director of athletics and coach, Cambridge, Nebraska, high school, 1932–34; head football coach, director of intramural sports, track coach, assistant commandant of cadet regiment, and physical education instructor, Central High school, Omaha, Nebraska, 1934–37. Instructor in physical education and athletics, 1937–38; present position, 1938–

KALIJARVI, THORSTEN V., *Professor of Government*

A.B., Clark university, 1920; A.M., *ibid.*, 1923; Ph.D., University of Berlin, 1935. Graduate work, Carnegie Endowment fellow, School of Arts and Sciences, Harvard university, 1920–22. Attended Hague Academy of International Law and Geneva School of International Relations, summer of 1929. Conducted Manchester public forum, February–April, 1937. Instructor in modern languages, 1923–24; instructor in history and political science, 1924–25; assistant professor of history and political science, 1925–27; assistant professor and acting head of the department of political science, 1927–28; associate professor of political science, 1928–37; present position, 1937– (Leave of absence, 1942–43.)

KANGAS, JOHN T., *Editorial Assistant in the General Extension Service and Agricultural Experiment Station*

B.S., Cornell university, 1938. Sales and publicity, Franklin Research company, 1938–40. Present position, 1940–September 5, 1942. (Resigned.)

KAUPPINEN, TENHO S., *Instructor in Mechanical Engineering*

B.S., University of New Hampshire, 1939. Present position, 1939–

KEENER, HARRY A., *Instructor in Animal and Dairy Husbandry and Research Assistant, Agricultural Experiment Station*

B.S., Pennsylvania State college, 1936; M.S., West Virginia university, 1938; Ph.D., Pennsylvania State college, 1941. Graduate assistant in dairy husbandry, West Virginia university, 1936–38. Present position, 1941–

KEESEY, RAY E., *Instructor in English*

B.A., Ohio university, 1937; M.A., *ibid.*, 1938; graduate study, Ohio State university, spring 1938; summer 1939; 1939–40, summer 1941, 1942. Part-time teacher, Athens (Ohio) Junior High school, 1937–38; teacher, Dover (Ohio) Senior High school, 1938–39; assistant, Ohio State University, 1939–40. Present position, 1940–

KELLY, RUTH B., *Instructor in Mathematics*
A.B., Radcliffe college, 1933; graduate study, Harvard university, summer 1937; George Washington university, 1937; University of New Hampshire, summers 1939, 1942. Instructor, Mount Vernon Seminary and Junior college, 1936–40; Mary C. Wheeler school, Providence, R.I., 1940–41; head of department, Dalton school, New York City, 1941–42. Present position, 1942–

KENNEDY, ROBERT C., *Instructor in Applied Farming, and Counselor at East Hall*
B.V.A., Massachusetts State college, 1940. Teacher, Northampton, Massachusetts, Vocational school, 1940–41. Graduate instructor in applied farming, and counselor at East Hall, 1941–42; present position, February 15, 1942–July 31, 1942. (Resigned.)

KICHLINE, WILLIAM L., *Assistant Professor of Mathematics*
B.A., Lehigh university, 1924; M.S., *ibid.*, 1928; graduate study, University of Michigan, 1939–40. Assistant in mathematics, Lehigh university, 1924–28; instructor in mathematics, *ibid.*, 1928–31. Instructor in mathematics, 1931–1940; present position, 1940–

KING, ALICE MELENDY, *Home Demonstration Agent-at-Large, Extension Service*
B.S., University of New Hampshire, 1928; graduate study, Teachers college, Columbia university, 1941. Home Demonstration agent, Carroll county, 1929–38; Delaware, 1938–39. Present position, February 1, 1942–

KINGSBURY, FRANK W., *Club Agent in Coos County*
B.V.A., Massachusetts State college, 1939. Instructor, Bristol County Agricultural school, Segreganset, Mass., 1939–41; supervisor, Dairy Herd Improvement association, Plymouth and Worcester counties, 1941–42. Present position, October 1, 1942–

KLEVEN, LILLIE M., *Reader's Advisor and Reference Librarian*
B.Ed., Bemidji State Teachers college, Minnesota, 1937; B.L.S., George Peabody college, 1941. Teacher, rural schools, Clearwater county, Minnesota, 1933–35; instructor, Pequot High school, Pequot, Minnesota, 1937–39; library assistant, State Teachers college, Bemidji, Minnesota, 1939–40. Reader's Advisor, 1941–42; present position, 1942–December 19, 1942. (Resigned.)

KLINE, DOROTHY E., *Instructor in Music*
B.M., DePauw university, 1941; M.M., Eastman School of Music, 1942. Private teacher of piano and organ, 1937–42. Present position, November 16, 1942–

LAMBE, THOMAS W., *Instructor in Civil Engineering*
B.S., North Carolina State college, 1942. Present position, 1942–

LASH, MABEL A., *Home Demonstration Agent in Merrimack County*
B.S., Simmons college, 1933. Clerk, one year; laboratory technician, Manchester Dairy system, one year. Present position, 1935–

LATIMER, L. PHELPS, *Assistant Professor of Horticulture and Assistant Horticulturist, Agricultural Experiment Station*
B.S., University of California, 1921; M.S., *ibid.*, 1922; Ph.D., *ibid.*, 1926. Graduate assistant in pomology, University of California, 1922–26. Instructor in horticulture and assistant horticulturist of the Experiment station, 1926–28; present position, 1928–

LATON, THOMAS J., *Assistant Professor of Mechanical Engineering*
B.S., New Hampshire college, 1904. Research in turbine work, General Electric company, Lynn, Mass., 1904–06; commercial turbine work, General Electric company, 1906–07; summers of 1918 and 1920 with National Woodworking Machine company, Dover, New Hampshire; summer of 1930 with Kidder Press company, Dover, New Hampshire. Instructor in drawing, 1907–18; assistant professor of drawing, 1918–25; present position, 1925–

LEAVITT, HAROLD I., *Assistant Professor of Physics*
B.S., New Hampshire college, 1921; M.Ed., *ibid.*, 1936; M.A., Columbia university, 1940. Graduate student's course, Westinghouse Electric and Manufacturing company, 1921–22; commercial engineer, *ibid.*, 1922–26. Instructor in physics, 1928–39; present position, 1939–

LEONARD, BRADLEY W., *Reference Librarian*
B.S. in Ed., Fitchburg, Massachusetts, State Teachers college, 1938; B.L.S., Pratt Institute School of Library Science, 1939. Librarian, Brooklyn, New York, Public Library, 1939–41. Present position, 1941–February 10, 1942. (Resigned.)

LESSARD, FEDORA L., *Supervising Nurse*
R.N., Peter Bent Brigham hospital, 1928; study at New England School of X-ray, 1938. Clinic nurse, Beth Israel hospital, Boston, Massachusetts, 1929–30; medical supervisor, Kennebec, Maine, Valley hospital, 1930–34. Nurse, University of New Hampshire, 1934–39; present position, 1939–

LEVCOWICH, TATIANA, *Instructor in Home Economics and Research Assistant, Agricultural Experiment Station*
B.S., Rhode Island State college, 1936; M.S., *ibid.*, 1939. Research assistant, Rhode Island State College Experiment station, 1940–41. Present position, 1942–

LEWIS, DANIEL C., Jr., *Associate Professor of Mathematics*
A.B., Haverford college, 1926; A.M., Harvard university, 1928; Ph.D., *ibid.*, 1932. Instructor of mathematics, Lehigh university, 1929–31; part-time instructor of mathematics, Harvard university, 1931–32; instructor of mathematics, Cornell university, 1935–39. Assistant professor of mathematics, 1939–41; present position, 1941–

LEWIS, WALTER R., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., University of Wisconsin, 1941. Present position, 1941–

LINS, LOUISE A., *Assistant Cataloguer*
A.B., Dickinson college, 1939; B.S., Columbia University School of Library Science, 1940. Present position, 1940–April 30, 1942. (Resigned.)

LITTLEFIELD, RALPH B., *Agricultural Agent in Carroll County*
B.S., University of New Hampshire, 1927. Farm manager, Boston State hospital, 1928–37; superintendent, Rockingham County farm, 1937; farm manager, Danvers State hospital, 1937–39. Present position, 1940–

LUNDHOLM, CARL, *Director and Professor of Physical Education and Athletics*
B.S., New Hampshire college, 1921; M.A., Columbia university, 1939. Instructor in American history and director of athletics, Spaulding High school, Barre, Vermont, 1921–24; instructor in American history and director of athletics, Deering High school, Portland, Maine, 1924–28. Acting director, bureau of appointments, April 1–August 31, 1935; instructor in physical education and athletics, 1928–35; assistant professor, 1935–38; associate director and assistant professor of physical education and athletics, 1938–39; acting director, 1938–39; director and associate professor of physical education and athletics, 1939–41; present position, 1941–

LYFORD, WALTER H., JR., *Instructor in Agronomy and Coöperative Field Agent (in Soil Conservation Service), Agricultural Experiment Station*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932. Graduate assistant in chemistry, 1930–32. Instructor in agricultural and biological chemistry and agronomy and assistant in the soil survey, Agricultural Experiment station, 1935–39; present position, 1939–September 12, 1942. (Resigned.)

MAGRATH, RAYMOND C., *Treasurer*
Burdett Business college, 1916. Northfield schools, Northfield, Mass., 1916–18 and 1919–20. Executive secretary, New Hampshire Flood Reconstruction council, 1936; New Hampshire Disaster Emergency committee, 1938. Chief clerk, 1920–23; business secretary, 1923–27; treasurer and business secretary, 1927–38; present position, 1938–

MANTON, ROBERT W., *Professor of Music*
Harvard university, 1918; studied privately the pianoforte and organ under Harris S. Shaw of Boston; composition under Edward B. Hill, Boston, and M. Vincent d'Indy in Paris. Instructor in pianoforte, Mitchell Military school, Billerica, Mass.; taught privately piano, harmony, counterpoint, etc., in Boston; organist and choirmaster, Grace Episcopal church, South Boston. Director and instructor in music, 1923–26; assistant professor, 1926–28; director and associate professor of music, 1928–42; present position, 1942–

MARSTON, PHILIP M., *Assistant Professor of History*
B.A., University of New Hampshire, 1924; M.A., *ibid.*, 1927; graduate study, Harvard university, second semester, 1939–40. Student assistant in education and psychology, 1924; graduate assistant in education, psychology and social science, 1924–25; instructor in social science and sociology, 1925–29; assistant professor of social science and sociology, 1929–30; assistant professor of history and social science, 1930–31; present position, 1931–

MARTIN, ROBERT L., *Circulation Librarian*
B.A., Bethany college, 1940; B.S. in L.S., Library school, Peabody college, 1942. Assistant, Joint University library, Nashville, Tenn., 1940–42; cataloguer, Bethany college, summer 1942. Present position, September 8, 1942–

MAYOR, ROWLAND H., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1942. Present position, 1942–

MCCOOEY, ALICE C., *Nurse, Hood House*
R.N., Sacred Heart Training school, 1942. General duty at Portsmouth hospital. Present position, January 1, 1943–

MCDANIEL, RUTH E., *Instructor in Music*
B.S., Eastman School of Music, University of Rochester, 1942. Present position, November 16, 1942–

MCGEE, ADELYN G., *Nurse*
R.N., Peter Bent Brigham hospital, 1926. Special duty nurse at Peter Bent Brigham hospital, 1926–33; similar work in Maine, 1933–39. Present position, 1939–

MCGRAIL, THOMAS H., *Assistant Professor of English*
B.A., University of New Hampshire, 1927; M.A., Cornell university, 1931; Ph.D., *ibid.*, 1936. Graduate assistant in English, 1927–28; instructor in English, 1928–36; present position, 1936– (Entered military service, March 7, 1942.)

MCKENZIE, EDITH M., *Instructor in Economics*
A.B., Mt. Holyoke college, 1932; M.S.C., Boston university, 1942. Teacher, McIntosh Business college, 1933–36; Bryant and Stratton Commercial school, 1936–42. Present position, 1942–

MCLAUGHLIN, HELEN F., *Professor of Home Economics*
B.A., University of Wisconsin, 1909; B.S., Simmons college, 1915; M.A., Teachers college, Columbia university, 1925. Home Demonstration agent, Extension service, 1917–20; instructor in household science, 1920–21; associate professor, 1921–23; present position, 1923–

MEAD, ALDEN H., *Club Agent in Coos County*
B.S., Cornell university, 1928. Assistant club agent, Monroe county, New York, 1929; club agent, Columbia county, New York, 1929; farmer, New Milford, Pennsylvania, 1929–30. Present position, 1930–August 1, 1942. (Resigned.)

MEDESY, WILLIAM A., *Assistant Professor of Forestry*
B.S., Purdue university, 1931; M.F., Yale university, 1933. Field assistant, Central States Forest Experiment Station, 1932; C.C.C. Camp superintendent, Unaka National Forest (Tennessee, Virginia), 1933–34; assistant forester, Monongahela National Forest (West Virginia), 1934; forest ranger, *ibid.*, 1934–36; assistant forester, Jefferson National Forest (Virginia), 1936; assistant forester, Cumberland National Forest (Kentucky), 1936–37; associate forester, White Mountain National Forest, 1937–40. Instructor in forestry, 1940–41; present position, 1941– (Entered military service, July 1, 1941.)

METCALF, CLARENCE W., *Captain, Infantry, Assistant Professor of Military Science and Tactics*
B.S., University of New Hampshire, 1932; M.A., Harvard university, 1935; M.Ed., University of New Hampshire, 1942. Headmaster, Epping, New Hampshire, High school, 1935–41. Instructor in military science and tactics, 1941–42; present position, 1942–

MEYERS, THEODORE R., *Associate Professor of Geology*
B.A., Ohio State university, 1926; M.A., *ibid.*, 1929. Austin fellow, Harvard university, 1931–32. Assistant in geology, Ohio State university, 1924–26; assistant geologist for the geological survey of Ohio, summers 1925–28; geologist, New Hampshire State highway department, summers of 1935–36. Instructor in geology, 1927–34; assistant professor of geology, 1934–41; present position, 1941–

MILLS, MARIAN E., *Assistant Professor of Botany*
B.S., Teachers college, Columbia university, 1917; M.A., *ibid.*, 1920. Instructor in science, high school, Montclair, New Jersey, 1915–21; assistant in biology department, Teachers college, 1921–22; associate professor of biology, Kent State Normal college, 1922–27. Present position, 1927–

MITCHAM, SHELBY A., *Assistant Professor of Home Economics*
B.S., North Texas State Teachers college, 1934; M.S., Iowa State college, 1940. Teacher, Texas public schools, 1929–1939; critic teacher, East Carolina Teachers college, Greenville, North Carolina, 1939–41. Present position, 1941–

MOCHEL, MARGUERITE, *Instructor in Physical Education for Women*
B.A., Hunter college, 1940; M.A., Teachers college, Columbia university, 1942. Instructor, Fieldston School of Ethical Culture, 1941–42. Present position, 1942–

MOODY, MARION R., *Assistant in Home Economics*
B.S., University of New Hampshire, 1935; graduate study, *ibid.*, 1937. Present position, February 1, 1942–

MOORE, HERBERT C., *Assistant Professor of Dairy Husbandry and Assistant Dairy Husbandman, Agricultural Experiment Station*
B.S., Purdue university, 1923; M.S., University of Minnesota, 1925. Instructor in dairying, Rutgers university, 1925–26; chemist, The

Paulus Dairy company, Inc., New Brunswick, New Jersey, 1926–28. Instructor in dairy husbandry and assistant dairy husbandman in the Experiment station, 1928–35; present position, 1935–.

MOORE, MARION B., *Club Agent in Merrimack County*
B.S. in Educ., State Teachers' college, Framingham, Mass., 1930. Teacher, Home Economics, Vineyard Haven, Mass., 1930–32; public welfare visitor, Springfield, Mass., 1933–35; teacher, evening school, Springfield, Mass., 1933–35; assistant county club agent, Springfield, Mass., 1935–37. Assistant Club Agent in Merrimack county, 1938–1940; present position, 1940–

MOORE, RACHEL C., *Assistant County Club Agent in Grafton County*
B.S., University of New Hampshire, 1940. Present position, 1940–December 12, 1942. (Resigned.)

MORGAN, C. RICHARD, *Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Graduate assistant in chemistry, 1941–42; present position, 1942–

MORGAN, E. PHILLIP, *Instructor in Music*
B.M., University of Tulsa, 1937; graduate study, Juillard School of Music, summers 1939–41; Eastman School of Music, 1942. Private teacher of piano and organ, 1933–1942. Present position, 1942–October 31, 1942. (Resigned.)

MORROW, KENNETH S., *Professor of Dairy Husbandry and Dairy Husbandman of the Experiment Station*
B.S., University of Minnesota, 1918; M.S., *ibid.*, 1925. Operated dairy farm, Minnesota, 1919–24. Assistant dairy husbandman, Clemson college, South Carolina, 1925; associate dairy husbandman, *ibid.*, 1926–28; assistant professor of dairy husbandry and associate dairyman, University of West Virginia, 1928–31; assistant dairy specialist in the Extension service, Rutgers university, 1931–34. Present position, 1934–

MOULTON, VERNA E., *Instructor in Home Economics*
B.S., University of New Hampshire, 1938; M.Ed., *ibid.*, 1940; graduate study, Columbia university, summer, 1940, 1941, 1942. Graduate assistant in home economics, 1938–39; graduate assistant in home economics and house director in Bickford house, 1939–40; present position, 1940–

MURPHY, ELIZABETH J., *Graduate Assistant in Zoölogy*
B.S., Bethany college, 1942. Present position, 1942–

NARBUT, JOSEPH E., *Staff Sergeant, Detached Enlisted Men's List, U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. Army, 1939–. Present position, 1941–

NASON, HARRIET B., *Supervising Nurse*
R.N., Wentworth hospital, Dover, N. H. Head nurse, Wentworth

hospital, 1935–36; private nursing, 1937–42. Present position, September 1, 1942–

NASVIK, HARLAND P., *Assistant Professor of Photography and in Charge of Photo-Visual Service*
B.A., Luther college, 1931. Owner, manager, college studio, Luther college, 1927–31; photographer and salesman, New York City; official photographer, Piccard Flight, Norse Royalty visit to Decorah, Iowa; photographer, Northern Pacific railway and Northwest Airways, Inc.; photographic technician, Photographic laboratory, University of Minnesota, 1935–38; assistant manager, *ibid.*, 1938–40. Present position, 1940–

NEVILLE, JOHN P., *Assistant in Charge of Radio Service*
B.A., University of New Hampshire, 1927; M.A., Ohio State University, 1942. Publicity agent and executive assistant in A.A.A. in the Extension service, 1935–36; assistant agricultural editor in the Experiment station and Extension service, 1936–38. Assistant to the director of the General Extension service and Agricultural Experiment station, 1938–39; assistant to the director of the General Extension service, 1939–41; present position, 1941–

NORTHBY, ARWOOD S., *Assistant to the President*
B.S.. University of Minnesota, 1924; M.A., *ibid.*, 1930; Ph.D., *ibid.*, 1935. Teacher, junior high school, Grand Rapids, Minnesota, 1924–25; principal, *ibid.*, 1925–28; superintendent of schools, Baudette, Minnesota, 1928–31; high school inspector, University of Minnesota, 1931–34; instructor in education and assistant to the dean, *ibid.*, 1935; assistant professor, University of Buffalo, 1936–39. Chairman, Committee on Summer School, 1940–. Present position, 1939–

NULSEN, WILLIAM B., *Assistant Professor of Electrical Engineering*
B.S., California Institute of Technology, 1918; M.S., University of New Hampshire, 1930; graduate study, Union college, 1920–21. General Electric company, Schenectady, New York, 1918–26. Instructor in electrical engineering, 1926–29; present position, 1929–

NYE, EDWIN P., *Instructor in Mechanical Engineering*
B.S., University of New Hampshire, 1941. Sales and service engineer, Bailey Meter company, Cleveland, Ohio, 1941–42. Present position, October 1, 1942–

O'BRIEN, DANIEL A., *Agricultural Agent in Coos County*
Cornell university, 1913. Agricultural instructor, high school, Little Valley, New York, 1913–17; assistant farm manager, Parish, New York, 1920. Present position, 1920–

O'CONNELL, ELIAS M., *Instructor in Mechanical Engineering, Forge and Welding Shop*
Graduate, Wentworth institute, course in forging, hardening and tempering, 1923; graduate, two-year course in pattern making, *ibid.*,

1925. Employed as acetylene welder and shop worker for Biddle and Smart of Amesbury, Mass., 1922–23; as pattern maker, 1925–26; electric welder, Sullivan Machine company, Claremont, N. H., summers, 1936–37. Present position, 1926–

O'KANE, WALTER C., *Professor of Economic Entomology and Entomologist, Agricultural Experiment Station*

B.A., Ohio State university, 1897; M.A., *ibid.*, 1909; D.Sc. (hon.), *ibid.*, 1932. Newspaper and magazine work, 1899–1909; United States Food administration, 1917–18; chairman of board appointed by U. S. Secretary of Agriculture to combat Mediterranean fruit fly in Florida, January–November, 1930; chairman, National Plant board, 1930–35; chairman, board of governors, the Crop Protection institute, 1920–. Deputy commissioner of agriculture, State of New Hampshire, 1913–; State nursery inspector, 1915–. Associate professor of entomology and assistant entomologist in the Experiment station, 1909–10; present position, 1910–

PARKER, CLIFFORD S., *Professor of Languages*

A.B., Harvard university, 1912; A.M., *ibid.*, 1914; Ph.D., Columbia university, 1925. Master in French and German, St. Stephens school, 1912–13; instructor in French and German, Union college, 1914–16; master in French and Spanish, Country Day school, Kansas City, Missouri, 1916–17; assistant professor of French, University of Nebraska, 1919–20; instructor in French, Columbia university, 1920–28; associate professor of French, University of Maine, 1928–31. Present position, 1931–

PARTRIDGE, ALLAN B., *Assistant Professor of History*

A.B., Clark university, 1922; A.M., *ibid.*, 1923; graduate study, Harvard university, 1939. Master in the Holderness school, 1923–25. Instructor in history and political science, 1925–29; present position, 1929–

PEART, H. PATRICIA, *Library Assistant in Charge of the Art Division*

B.A., University of New Hampshire, 1936. Instructor, Chamberlayne School, Boston, 1937; Cambridge Preparatory and Graduate Schools, 1937–41. Present position, 1941–

PEPOON, LUCILE, *Assistant Professor of Home Economics*

B.S., University of Wyoming, 1926; M.S., University of Nebraska, 1937. High school instructor, Rawlins and Hanna, Wyoming, 1926–28, 1931–32; Douglas, Alaska, 1928–30, 1931–36; assistant supervisor vocational home economics, Territory of Alaska, 1935–36; instructor, University of Nebraska, summer 1937; home demonstration agent, Iowa, 1937–38; high school teacher and cafeteria manager, Canal Zone, 1938–39. Instructor in home economics, 1939–41; present position, 1941–

PERCIVAL, GORDON P., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist in Agricultural and Biological Chemistry, Agricultural Experiment Station*

B.S., Massachusetts Agricultural college, 1924; M.S., *ibid.*, 1926. Graduate study, Rutgers university, September 16, 1941–January 31, 1942. Graduate assistant, Massachusetts Agricultural college, 1924–26. Present position, 1926–

PERKINS, DONALD M., *Instructor in Mathematics*
B.S., University of New Hampshire, 1931; M.S., *ibid.*, 1933. Graduate assistant, 1931–33; present position, 1933–

PERRETON, ARNOLD, *Assistant Professor of Architecture*
B.Arch., Carnegie Institute of Technology, 1927; M.Arch., Harvard university, 1940. One year of travel and study in Europe. Two years with Janssen & Cocken, architects, Pittsburgh, Pa. Instructor in architecture, 1928–31; present position, 1931–

PERRY, ERROL C., *Land Use Specialist, Extension Service*
B.S., Massachusetts Agricultural college, 1919. Tester for cow test associations, laborer and herdsman, Claremont, Lebanon and Hooksett, New Hampshire, 1920–29. Agricultural agent for Carroll county, 1929–39; present position, 1939–September 30, 1942.

PHILLIPS, THOMAS G., *Professor of Agricultural and Biological Chemistry and Chemist, Agricultural Experiment Station*
B.S., Ohio State university, 1912; M.S., *ibid.*, 1913; Ph.D., University of Chicago, 1918. Instructor to professor, department of agricultural chemistry, Ohio State university, 1912–25. Present position, 1925–

PHILLIPS, WILLIAM T., *Assistant Professor of Economics*
A.B., Allegheny college, 1931; Ph.D., Cornell university, 1942. Metropolitan Life Insurance company, 1931–36; Wentworth and Company Investment Council, 1936; Carret, Gammons and Company, Investment Dealers, 1937; tutor, University Tutoring school, 1937–39; instructor, Cornell university, 1938–40. Instructor in economics, 1940–41; present position, 1941–September 30, 1942. (Resigned.)

PHIPPS, ROBERT H. K., *Assistant County Agent in Forestry*
B.S., University of New Hampshire, 1931. Foreman, C.C.C., U. S. Forest service, six years; forest cultural work, management plan survey, draftsman. Present position, September 15, 1942–

PIERCE, EVERETT W., *Agricultural Agent in Hillsborough County*
B.S., Cornell university, 1923. Assistant county agent, Ontario county, New York, 1923. Present position, 1923–

PRINCE, FORD S., *Professor of Agronomy and Agronomist, Agricultural Experiment Station*
B.S., University of Illinois, 1913; graduate study, University of Wales, summer, 1938. Instructor in soils, Michigan Agricultural college, 1913–14; instructor and assistant professor of agronomy, New Hampshire college, 1914–18; county agricultural agent, Xenia, Ohio, 1918–25. Associate agronomist and extension specialist in soils and crops, 1925–32; associate professor of agronomy, associate agronomist

of the Experiment station, and specialist in soils and crops in the Extension service, 1932–35; associate professor of agronomy and associate agronomist of the Experiment station, 1935–36; present position, 1936–

PULLEN, RUTH E., *Home Demonstration Agent in Carroll County*
B.S., Madison college, 1937. Teacher, Crozet (Virginia) high school, 1937–40; Greenwood (Virginia) high school, 1939–40. Present position, 1940–July 15, 1942. (Resigned.)

PURINGTON, JAMES A., *Agricultural Agent in Rockingham County*
B.S., New Hampshire college, 1916; M.S., Massachusetts Agricultural college, 1920. Boys' and Girls' club agent, Cheshire county. 1920–22; present position, 1922–

RAWLINGS, CECIL O., *Assistant Professor of Horticulture and Horticulturist, Extension Service*
B.S., University of Illinois, 1925; graduate study, University of New Hampshire, 1933, 1938–39. U.S.D.A., Illinois, Florida and Georgia, 1925–26; horticultural agent, St. Louis and Southwestern railway, 1926–30. Present position, 1930–

RECORD, MASON T., *Instructor in Sociology*
B.A., Yale college, 1932; Ph.D., Yale university, 1938. Instructor, Sweet Briar college, 1938–40; University of Connecticut, 1940–41. Present position, 1941–

REYNOLDS, JOHN H., *Instructor in Government*
A.B., Harvard college, 1929; M.A., Harvard Graduate school, 1930; graduate study, Brown Graduate school, 1930–32; Harvard Graduate school, 1932–36. Assistant, Brown university, 1930–32; private teaching and lecturing, 1937–42. Present position, 1942–

RICE, UNA A., *Home Demonstration Agent in Grafton County*
B.S., Teachers college, Columbia university, 1927; A.M., *ibid.*, 1942. Nasson institute, 1914–16. Teacher, home economics, Maine, New Hampshire, Vermont and Massachusetts, 1916–29. Present position, 1929–

RICH, AVERY E., *Club Agent in Grafton County*
B.S., University of Maine, 1937; M.S., *ibid.*, 1939. Assistant supervisor, Farm Security administration, 1939–40; agricultural instructor, Newport, Maine, High school, 1940–41. Acting club agent in Grafton county, 1941–42; present position, 1942–

RICHARDS, ALFRED E., *Professor of English*
A.B., Yale university, 1898; A.M., *ibid.*, 1900; Ph.D., University of Munich, Germany, 1904; graduate study, University of California, summers 1917, 27; Columbia university, 1920. Instructor in English and history, Winsted, Connecticut, 1900–01; instructor in modern languages, Lehigh university, 1904–05; instructor in German, Princeton university, 1905–11; instructor in English, University of Washing-

ton, 1911–12; lecturer, University of Minnesota, 1912. Present position, 1912–

RICHARDS, ELISABETH, *Library Assistant*
B.S., University of New Hampshire, 1940. Present position, 1940–42.

RICHARDS, MATHIAS C., *Assistant Professor of Botany and Plant Pathologist, Agricultural Experiment Station*
B.S., Utah State Agricultural college, 1932; Ph.D., Cornell university, 1938. Instructor in plant pathology, Cornell university, 1938–39; associate professor of plant pathology, University of Tennessee, 1939–41. Present position, 1941–

RICHARDSON, EDYTHE T., *Assistant Professor of Zoölogy*
B.S., New Hampshire college, 1922; M.S., *ibid.*, 1924. Graduate assistant in zoölogy, 1922–24; instructor in zoölogy, 1924–29; present position, 1929–

RINGROSE, RICHARD S., *Instructor in Poultry Husbandry and Assistant Poultry Husbandman, Agricultural Experiment Station*
B.S., Cornell university, 1932; Ph.D., *ibid.*, 1936. Supervisor, poultry farm, South Carolina Experiment station, 1936–42. Present position, October 1, 1942–

RITZMAN, ERNEST G., *Research Professor in Animal Husbandry in the Experiment Station*
B.S.A., Iowa State college, 1903; M.S. (hon.), University of New Hampshire, 1928. With bureau of animal industry, U. S. department of agriculture, 1903–08; animal husbandman, Porto Rico Agricultural Experiment station, 1908–15; research associate, Carnegie Institution of Washington, 1934. Present position, 1915–

ROBERTS, BROCKWAY D., *University Physician*
B.S., University of Chicago, 1925; M.D., University of Illinois College of Medicine, 1934. General practice, Wayland, Iowa, 1935–38; director of student health, Knox college, 1938–41. Present position, 1941–

ROBERTS, JOHN E., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1942. Present position, 1942–

ROBINSON, EARL P., *County Agent Leader in the Extension Service*
B.S., Michigan Agricultural college, 1907. Teacher, Northwood Center, N. H., 1907–08; agriculturist for Indiana Sugar company, 1912; county agricultural agent, Saginaw county, Michigan, 1913–17; assistant state leader, Michigan, 1917–18. Rural rehabilitation unit of federal relief administration, Washington, 1934. State executive officer, agricultural conservation program, 1936–; present position, 1919–

ROMSTAD, CAMILLA, *Editorial Assistant in the General Extension Service and Agricultural Experiment Station*
St. Olaf college, 1924–26. Secretary, Office of Publications, Univer-

sity of Minnesota, 1930–32; assistant editor of bulletins, 1932–39; assistant, Office of Publications, University of Southern California, 1939–42. Present position, October 1, 1942–

ROPER, ELIZABETH R., *Club Agent in Carroll County*
B.A., University of New Hampshire, 1928. Acting boys' and girls' club agent in Carroll county, 1938–39; club agent in Strafford county, 1928–38, 1939–41; present position, 1941–

ROSEN, MYRON J., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Present position, 1941–

ROSSELL, MARGARET, *Graduate Assistant in History and Assistant to the House Director, Congreve Hall*
A.B., University of New Hampshire, 1934; graduate study, Duke university, summer 1937, College of Charleston, summer 1940. Grade teacher, Parris Island (South Carolina) Post School, 1935–40; Ashley Hall, 1940–42. Present position, 1942–

ROWE, EMMA P., *Acting Circulation Librarian*
B.A., University of New Hampshire, 1938; graduate study, *ibid.*, summer, 1939. Second assistant librarian, Exeter Public library. Library assistant, 1940–42; present position, February 1, 1942–November 30, 1942. (Resigned.)

ROWELL, JOHN C., *Assistant in Chemistry*
B.S., University of New Hampshire, 1940. Graduate assistant in chemistry, 1940–41; present position, 1941–42.

RUDD, HERBERT F., *Professor of Philosophy*
A.B., Central college, Iowa, 1900; B.D., University of Chicago, 1903; M.A., *ibid.*, 1913; Ph.D., *ibid.*, 1914. Principal of Munroe academy, Suifu, West China, 1906–08; general mission work, Nigyuanfu, 1909–14; lecturer on problems of China, University of Chicago, 1914; supervisor of mission schools, Suifu, 1914–16; principal of Munroe academy, 1916–17; professor of education and psychology, West China university, Chengtu, 1918–19; dean of department of education, West China university, 1920–21; special work, Columbia university and University of Chicago, 1921–22. Associate professor of education and psychology, 1922–25; professor of philosophy and psychology, 1925–34; present position, 1934–

RUTMAN, JULIA Z., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., Pennsylvania State college, 1939. Medical technician, Scranton (Pennsylvania) State hospital, 1939–41; Warne hospital, Pottsville, Pennsylvania, 1941–42. Present position, 1942–January 31, 1943. (Resigned.)

SACKETT, EVERETT B., *Registrar and Associate Professor of Education*
B.A., Hamline university, 1923; M.A., University of Minnesota, 1925; Ph.D., Columbia university, 1931. Teacher, high schools,

Minnesota and Wisconsin, 1925–27; director of research and curriculum, Panama Canal schools, 1930–35; lecturer, Colorado State College of Education, summers, 1933, 34; chairman of admissions, Lincoln school, Columbia, 1935–36; extension instructor, State Teachers college, Montclair, N. J., 1936; research associate, New York Regents' Education Inquiry, 1936–37; instructor, Graduate School of Education, Harvard university, 1938. Associate registrar and associate professor of education, 1938–39; present position, 1939–

SANBORN, MARY L., *Assistant State Club Leader, Extension Service*
Oread institute, Worcester, 1904; Teachers college, Columbia university, summer, 1912, fall and winter terms, 1914; Colorado State college, summer, 1938. Teacher in grade schools in Massachusetts and New Hampshire, 1904–12; teacher of home economics, Westerly, Rhode Island, 1911–14. Present position, 1915–

SAUER, GEORGE H., *Assistant Professor of Physical Education and Athletics*
B.S., University of Nebraska, 1934; graduate study, University of Nebraska, summer, 1934; M.A., Columbia university, 1941. Coached freshman football and basketball teams, University of Nebraska, 1934; played professional football with the Green Bay Packers, 1935–36; employed by General Foods, 1937. Present position, 1937– (Entered military service, May 1, 1942.)

SCHAEFER, PAUL E., *Assistant Professor of Zoölogy*
A.B., Bethany college, 1926; M.S., Ohio State university, 1931; Ph.D., *ibid.*, 1936. Teacher of general science, Warren, Ohio, Junior High school, 1927–28; graduate assistant in zoölogy, Ohio State university, 1930–31, instructor in zoölogy, Ohio State university, 1931–41. Present position, 1941–

SCHEIER, EDWIN, *Instructor in Art*
Art-Students League, 1928–30; New York School of Industrial Art, 1929–31; studied and worked with following craftsmen: Vally Weiselther, Peter Muler Monk, Eugene Schumacker. Studio potter, New York City, 1934–36; instructor, Federal Art Project of New York, 1936–37; supervisor, Lynchburg Art Center, Virginia, 1937–38; director, Norris Art Center, Tennessee, 1937–39; operated a commercial pottery in Glade Spring, Virginia, 1939–40. Instructor in pottery, 1940–42; present position, 1942–

SCHOEDINGER, PAUL S., *Assistant Professor of English*
A.B., Princeton university, 1920; M.A., Ohio State university, 1921; Ph.D., Yale university, 1940. Instructor in English, Ohio State university, 1921–22. Instructor in English, 1926–29; present position, 1929– (Entered military service, September 1, 1942.)

SCHOOLCRAFT, JAMES T., *Assistant Professor of Languages*
B.S., Union college, 1923; Abgangs-Zeugnis, Heidelberg university, 1924; A.M., Columbia university, 1926. Teacher, Columbia univer-

sity, fall term, 1924; Hunter college, winter term, 1925–26; University of Manitoba, 1927–30; The Phillips Exeter academy, 1931–34. Instructor in languages, 1936–39; present position, 1939–

SCRIPTURE, PAUL N., *Instructor in Agricultural and Biological Chemistry and Assistant in the Soil Survey, Agricultural Experiment Station*
B.S., University of New Hampshire, 1934. Laboratory assistant in agricultural and biological chemistry, 1934–35; present position, 1935–June 15, 1942. (Resigned.)

SCUDDER, HAROLD H., *Acting Dean of the College of Liberal Arts, and Professor of English*
B.S., Dartmouth college, 1903. Study at Cambridge university, England, 1936. Newspaper work in New England and the Pacific Northwest, 1904–13. Publicity director Federal Food administration for New Hampshire, 1918. Faculty: Boston university summer session, 1917; University of Maine summer session, 1930. In charge of publicity, New Hampshire college, 1913–23. Instructor in English, 1913–14; assistant professor, 1914–18; associate professor, 1918–28; chairman, Executive committee, College of Liberal Arts, second semester, 1940; professor of English, 1928–41. Present position, 1941–

SEARS, ROBERT B., *Assistant in Charge of the Plant and Animal Sciences Library*
B.S., University of the South, 1932; B.S. in Library Science, Columbia university, 1940. Tennessee Valley Authority, surveying, clerical, research, laboratory work, 1934–1939; New York Public library, summer, 1940; Columbia University library, fall, 1940. Present position, 1941–August 31, 1942. (Resigned.)

SEIBERLICH, JOSEPH, *Research Assistant Professor of Industrial Engineering*
Diplom Ingenieur, Technical University, Karlsruhe, Germany, 1924; Doctor Ingenieur, *ibid.*, 1928. Research chemist, I. G. Farbenindustry, Germany, 1926–1933; Canadian International Paper company, Hawkesbury, Ontario, Canada, 1934–37, independent research and consulting work, 1938–41. Research consultant, Engineering Experiment station, 1941–42; present position, 1942–

SHANAHAN, ARTHUR J., *Graduate Assistant in Bacteriology*
B.S., Holy Cross college, 1941; graduate study, University of New Hampshire, 1941–42. Present position, 1942–

SHEEHAN, ELEANOR L., *Instructor in Zoölogy*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1931. Graduate assistant in zoölogy, University of New Hampshire, 1930–31; assistant in zoölogy, Barnard college, Columbia university, 1931–32; instructor, Adelphi college, 1932–33. Assistant in zoölogy, 1933–35; present position, 1935–

SHIMER, STANLEY R., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist, Agricultural Experiment Station*

B.S., Muhlenberg college, 1918; M.S., Pennsylvania State college, 1923; graduate study, Cornell university, 1929–30. Instructor in science, high school, Lansdale, Pennsylvania, 1918–19; head of chemistry department, State Normal school, East Stroudsburg, Pennsylvania, 1919–20; head of physics department, Battin high school, Elizabeth, New Jersey, 1920–21; instructor in physiological chemistry, medical department, Temple university, 1921–22; graduate assistant in chemistry, University of Illinois, 1923–24. Instructor in agricultural and biological chemistry and assistant chemist of the Experiment station, 1924–28; present position, 1928–

Sim, John C., *Assistant Professor of English and University Editor*
B.A., University of North Dakota, 1932; M.A., University of Minnesota, 1940. Assistant, instructor, acting head of Department of Journalism, University of North Dakota, 1934–40; instructor, University of Alabama, 1940–41. Present position, 1941–June 30, 1942. (Resigned.)

Skelton, Russell R., *Associate Professor of Civil Engineering*
B.S., in civil engineering, Purdue university, 1923; C.E., *ibid.*, 1934; S.M. in engineering, Harvard university, 1939. Highway engineer, Illinois Highway department, 1923–26; assistant engineer, bridge department of Southern railway system, 1926–28; New Hampshire State Highway department, resident engineer on construction and special design, summers 1929, '33; consulting engineer, City of Dover, N. H., summers, 1935, '36; instructor, Graduate School of Engineering, Harvard university, 1938–39. Instructor in civil engineering, 1928–30; assistant professor of civil engineering, 1930–35; present position, 1935–

Slanetz, Lawrence W., *Associate Professor of Bacteriology and Bacteriologist, Agricultural Experiment Station*
B.S., Connecticut State college, 1929; Ph.D., Yale university, 1932. Assistant instructor, Yale university, 1931–32. Instructor in bacteriology, department of botany, 1932–34; instructor in bacteriology, department of botany, and assistant in bacteriology in the Experiment station, 1934–38; assistant professor of bacteriology, department of botany, and assistant bacteriologist, Agricultural Experiment station, 1938–41; present position, 1941–

Slobin, Hermon L., *Dean of the Graduate School and Professor of Mathematics*
A.B., Clark university, 1905; Ph.D., *ibid.*, 1908. Instructor, Michigan State college, 1908–09; instructor and assistant professor, University of Minnesota, 1908–18. Study at Cambridge university, England, and in Europe, 1932. Director of the Summer school, 1922–27; acting director, 1933; director, 1934–37; director of the Graduate school, 1928–30; dean of the Graduate school, 1930–; professor of mathematics, 1919–; present position, 1930–

SMITH, DONALD W., *Assistant in Visual Aids*
B.S., University of Illinois, 1939. Assistant in visual education service, University of Illinois Extension service, 1932–39. Present position, 1939–

SMITH, EDWIN K., *Colonel, Coast Artillery Corps, Professor of Military Science and Tactics*
M.E., Cornell university, 1906. Graduate Battery Officers course, Coast Artillery school, Fort Monroe, Virginia, 1914; inspector and adjutant base No. 1, St. Nazaire, France, 1918; secretary to the chief of artillery, A.E.F., France, 1918 and 1919; graduate, advanced course, Coast Artillery school, Fort Monroe, Virginia, 1924; graduate, Command and General Staff school, Fort Leavenworth, Kansas, 1925; professor of military science and tactics, Athens high school, Athens, Georgia, 1932–36; Executive 4th Coast Artillery, Fort Amador, Canal Zone, 1936; Executive and Adjutant, Pacific Sector, Balboa, Canal Zone, 1936–38. Present position, 1938–

SMITH, GRACE H., *Home Demonstration Agent in Strafford County*
B.S., Cornell university, 1921. New York State College for Teachers, 1917–18. Assistant home demonstration agent, Suffolk county, New York, 1921–22; home demonstration agent, Cayuga county, New York, 1922–25, and in Herkimer county, New York, 1925–33. Present position, 1933–

SMITH, HARRY W., *Professor of Economics*
A.B., Hamilton college, 1908; A.M., *ibid.*, 1912; A.M., Columbia university, 1920; Auburn Theological seminary, 1911. Summer 1926, studied, in Europe, international economic and political cooperation under appointment of Carnegie Endowment for International Peace. For three summers member of School of Politics at Williams college. State supervisor of workers' education, W.P.A., 1936–37. Professor of oratory and economics, Dubuque college and seminary, 1918–20. Present position, 1920–

SMITH, LUCINDA P., *Associate Professor of English*
A.B., Colby college, 1901; M.A., Boston university, 1934. Taught in Massachusetts high schools, 1901–05; Dover, New Hampshire, high school, 1905–13. Instructor in English, 1919–26; assistant professor of English, 1926–29; present position, 1929–

SMITH, ROYAL W., *Agricultural Agent in Belknap County*
B.S., University of New Hampshire, 1928. Agricultural agent in Carroll county, 1928–29; present position, 1929–

SMITH, RUTH L., *Home Demonstration Agent in Carroll County*
B.S., University of New Hampshire, 1938. Instructor, Weare, New Hampshire, High school, 1938–39. Home demonstration agent-at-large, 1939–42; present position, August 1, 1942–

SMITH, TODD O., *Assistant Professor of Agricultural and Biological Chemistry and Associate Chemist in Agricultural and Biological Chemistry, Agricultural Experiment Station*

A.B., Indiana university, 1910; M.S., New Hampshire college, 1917. Assistant chemist, Agricultural Experiment station, 1910–21; present position, 1921–

SMITH, WILLIAM W., *Assistant Professor of Horticulture and Research Assistant in Horticulture, Agricultural Experiment Station*

B.S., University of New Hampshire, 1924; M.S., *ibid.*, 1929; Ph.D., Michigan State college, 1935. Graduate assistant, Michigan State college, 1929–33; research assistant, *ibid.*, 1933–36. Present position, 1936–

SOLT, MARVIN R., *Associate Professor of Mathematics*

B.S., Lehigh university, 1918; M.S., *ibid.*, 1925; graduate study, University of California, 1938–39. Instructor, Mercersburgh academy, 1918–19; instructor in mathematics at Lehigh university, 1919–26. Instructor in mathematics, 1926–29; assistant professor of mathematics, 1929–41; present position, 1941–

SPILLANE, ELEANOR M., *Graduate Assistant in the Department of Physical Education for Women*

B.S., Sargent college of Boston university, 1939. Instructor in physical education, Presentation of Mary academy and Rivier college, 1939–41. Present position, 1941–42.

STANDEN, ANTHONY, *Assistant in Entomology and Research Chemical Assistant, Agricultural Experiment Station*

B.A., Oxford, England, 1928; S.M., Massachusetts Institute of Technology, 1930. Graduate study, University of New Hampshire, 1940–41. Research chemist, Imperial Chemical Industries, Ltd., 1930–38. Present position, 1941–42.

STANDISH, MYLES, *Assistant County Forestry Extension Agent in Coos County*

B.S., University of Maine, 1926. Party chief, timber and land surveys, 1927–39. Present position, December 16, 1939–July 31, 1940; February 1, 1941–April 15, 1942. (Resigned.)

STARKE, RAYMOND R., *Professor of Hotel Administration*

A.B., Boston university, 1921; A.M., Harvard university, 1926; graduate study, Cornell university, second semester, 1937–38. Assistant in physics, Harvard university, 1924–26. Instructor in physics, 1921–24; 1926–28; assistant professor of physics, 1928–38; associate professor of hotel administration, 1938–42; present position, 1942–

STEMPIN, CARL W., *Instructor in Physics*

B.S., Carnegie Institute of Technology, 1942; graduate study, University of Cincinnati, 1942. Present position, October 1, 1942–

STENZEL, GEORGE, *Assistant Carroll County Agent in Forestry*
B.S., University of New Hampshire, 1938; M.F., Yale School of Forestry, 1939. Forest Service N.E.F.E., October, 1939–March, 1940. Present position, 1940–July 26, 1942. (Resigned.)

STEVENS, CLARK L., *Professor of Forestry and Forester, Agricultural Experiment Station*
B.S., New Hampshire college, 1917; M.F., Yale university, 1926; Ph.D., *ibid.*, 1930. Assistant in forestry, 1919, 1920–21; instructor in forestry, 1921; assistant professor of forestry, 1922–25; assistant professor of forestry and assistant forester of the Experiment station, 1925–37; associate professor of forestry and associate forester of the Experiment station, 1937–38; present position, 1938–

STEVENS, HENRY B., *Director of the General Extension Service*
A.B., Dartmouth college, 1912. Student, folk-play and folk-schools, Europe, 1934. Assistant editor, Woman's Journal and Suffrage News, 1912–13; associate editor, 1914–17. Executive secretary, Experiment station and Extension service, 1918–38. Assistant director of the General Extension service and executive secretary of the Agricultural Experiment station, 1938–39; assistant director of the General Extension service and editor of the Agricultural Experiment station, 1939–41; acting director of the General Extension service, 1941–42; present position, 1942–

STEWART, GLENN W., *Instructor in Geology*
B.S., University of New Hampshire, 1935; M.S., Syracuse university, 1937. Graduate study, Harvard university, 1937–38. Assistant in geology, University of New Hampshire, 1938–39. Instructor in geology, Purdue university, 1939–41. Present position, 1941–

STICHT, JOHN H., *Instructor in Geology*
B.S., Victoria University college, University of New Zealand, 1938; M.S., *ibid.*, 1940; M.A., Harvard university, 1942. Demonstrator and assistant, Victoria University college, University of New Zealand, 1937–40; assistant, Tufts college, 1942. Present position, 1942–

STIMSON, RUTH G., *Home Demonstration Agent-at-Large*
B.S., University of New Hampshire, 1940; graduate study, *ibid.*, summers 1941, 1942. Instructor, Woodsville High school, 1940–42. Present position, September 7, 1942–

STOLWORTHY, E. HOWARD, *Assistant Professor of Mechanical Engineering*
B.S., Tufts college, 1922; graduate study, Yale university, 1939–40. Draftsman, ventilating equipment, B. F. Sturtevant Co., summer, 1926; designer, industrial plant equipment, General Electric Co., summer, 1929; designer, power plant equipment, Stone and Webster Inc., summer, 1930; heating engineer, Public Works Dept., State of New Hampshire, summer, 1933; asst. engineer, power plant installation, General Electric Co., summer, 1937; asst. director, Civilian Pilot Training, summer, fall, 1940; coordinator, 1941–; ground school

instructor, 1940–. Instructor in mechanical engineering, 1922–29; present position, 1929–

STOWE, A. MONROE, *Professor of Education*
Ph.B., Northwestern university, 1903; A.M., *ibid.*, 1904; A.M., Harvard university, 1905; Ph.D., Columbia university, 1909. Secondary school work, four years; associate professor of education, Kansas State Teachers college, 1909–12; director of training, State Normal school, Whitewater, Wisconsin, 1912–13; acting professor of education, DePauw university, 1913–14; President, University of City of Toledo, 1914–25; research, 1925–26; professor of education, Randolph-Macon Woman's college, 1926–34; visiting professor, Duke university summer school, 1927–34, 37, 41. Present position, 1934–

SWAIN, LEWIS C., *Assistant Professor of Forestry, Assistant Forester, Agricultural Experiment Station, and Acting Alumni Secretary*
B.S., New Hampshire college, 1918; Graduate, Bandmaster School, Chaumont, France, 1919; M.F., Harvard university, 1939. Bandmaster, 318th Engineers' Band, U. S. Army, 1919; employed in erecting department, Worthington Pump and Machinery Corporation, 1920–21; partner in woodworking and manufacturing company, 1921–26; assistant pathologist, United States bureau of plant industry and bureau of entomology and plant quarantine (civil service rating, associate pathologist), 1926–36; forester in the southeast district, State of New Hampshire, 1926–36. Instructor in music with the status of bandmaster in the department of military science, 1927–36. Instructor in forestry and music, 1936–39; assistant professor of forestry, 1939–42; present position, 1942–

SWANSON, C. LOYAL W., *Assistant Professor of Agronomy and Soil Survey Assistant, Agricultural Experiment Station*
B.A., Coe college, 1933; M.S., Iowa State college, 1938; Ph.D., *ibid.*, 1941. Foreman and survey mapper, United States Forest service, 1933–35; junior agronomist, United States Soil Conservation service, 1935–37; junior agronomist, United States Soil Conservation Experiment station, University of Missouri, 1939–40; fellow, Iowa State college, 1937–39, 1940–41. Instructor in agronomy and soil survey assistant, Agricultural Experiment station, 1941–42; present position, 1942– (Entered military service, July 1, 1942.)

SWASEY, HENRY C., *Associate Professor of Physical Education and Athletics*
B.S., Amherst college, 1915; M.S., Indiana university, 1941. Fellow in physical education, Amherst college, 1915–16; instructor in physical education, Fessenden school, West Newton, Mass., 1916–17; instructor in physical education, Adelphia academy, Brooklyn, New York, 1917–18; instructor in physical education, Worcester Polytechnic institute, 1918–21. Assistant professor of physical education for men, 1921–26; present position, 1926–

SWEDBERG, JAMES H., *Graduate Assistant in Agricultural Economics, Agricultural Experiment Station*

B.S., University of Minnesota, 1941. Present position, 1941–February 17, 1942. (Resigned.)

SWEET, PAUL C., *Associate Professor of Physical Education and Athletics*

B.S., University of Illinois, 1923; M.A., University of Southern California, 1941. Director of athletics and physical education, Elko, Nevada, County high schools, 1923–24. Instructor in physical education and athletics, 1924–27; assistant professor of physical education and athletics, 1927–41; present position, 1941–

TAYLOR, FREDERICK W., *Director of the Agricultural Service Departments of the College of Agriculture*

B.S., Ohio State university, 1900. Assistant, Ohio Experiment station, 1900–01; government soil survey for the U. S. Department of Agriculture, 1901–03. Professor of agronomy and agronomist of the Agricultural Experiment station, 1903–32; dean of the College of Agriculture, 1915–33; director of the commercial departments of the College of Agriculture and agronomist of the Agricultural Experiment station, 1933–37; present position, 1937–

TEPPER, ALBERT E., *Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman of the Experiment Station*

B.S., Pennsylvania State college, 1928; M.S., University of New Hampshire, 1930; Ph.D., University of Maryland, 1941. Poultry certification inspector in the Agricultural Experiment station, 1930–31; instructor in poultry husbandry and assistant poultry husbandman, Experiment station, 1931–41; present position, 1941–May 15, 1942. (Resigned.)

THOMAS, GEORGE R., *Associate Professor of Architecture*

B. Arch., Carnegie Institute of Technology, 1930. Columbia university, summer 1938. European travel and study, June–September, 1933. In employ of architects: Neff and Thompson, Norfolk, Virginia; Parks and Baxter, Washington, D. C. Instructor, history and appreciation of art, Virginia Teachers college (Fredericksburg), summer, 1935. Instructor in architecture, 1930–34; assistant professor of architecture, 1934–41; present position, 1941–

THUT, I. N., *Assistant Professor of Education, and Acting Director, Bureau of Appointments*

B.S., College of Wooster, 1929; M.Ed., University of Buffalo, 1938; Ph.D., Ohio State university, 1940. Teacher and principal, rural schools, Ohio and New York, 1925–26, 1929–31; industrial work, Pennsylvania, 1931–34; educational publication work, New York, 1935–38; university scholar, Ohio State university, 1938–40, assistant, summer 1940, instructor, 1940–41. Assistant professor of education, 1941–42; present position, 1942–

TIRRELL, LORING V., *Professor of Animal Husbandry*

B.S., Massachusetts Agricultural college, 1920; graduate study, *ibid.*,

1940–41. Instructor, Massachusetts Agricultural college, 1920–21. Instructor, University of New Hampshire, 1921–25; assistant professor, 1925. Extension specialist in sheep and livestock, Connecticut Agricultural college, 1926–30. Associate professor of animal husbandry, 1930–36; present position, 1936– (Entered military service, March 15, 1942.)

TONKIN, JOHN C., *Instructor in Mechanical Engineering, Machine Shop*
Machinist and toolmaker, 1901–10. Instructor in machine work and forging, and mechanician to the laboratories, New Hampshire college, 1910–12. Director of Manual Training, Waltham, Mass., 1912–16; Watertown Arsenal, 1917–20; instructor in Mechanical School of American forces in Germany, 1920–21; foreman in machine shops in Lowell and Boston, 1921–24. Present position, 1924–

TORGESEN, JOHN L., *Assistant Professor of Chemistry*
B.S., University of Idaho, 1935; M.S., *ibid.*, 1937; Ph.D., Columbia university, 1942. Graduate assistant in chemistry, University of Idaho, 1935–37; assistant in chemistry, Columbia university, 1937–41. Instructor in chemistry, 1941–42; present position, 1942–

TOWLE, CARROLL S., *Associate Professor of English*
A.B., Bowdoin college, 1922; Ph.D., Yale university, 1933. Instructor, University of Texas, 1923–26. Professional study, first semester, 1941–42. Teaching assistant, Yale university, 1926–29; instructor, Yale university, 1929–31. Assistant professor of English, 1931–39; head, Writers' Conference, University of New Hampshire Summer school, 1938–42; present position, 1939–

TOZZER, CAROLINE M., *Teaching Fellow in the Department of Languages*
B.A., Smith college, 1941. Present position, 1941–42.

TRAVER, PAUL C., *Instructor in Applied Farming*
B.S., University of New Hampshire, 1936. Graduate study, Cornell university, summer 1936. Teacher, Brookfield, New York, Central school, 1936–37; sub-master, Orford, New Hampshire, High school, 1937–41. Present position, 1941–February 15, 1942. (Resigned.)

TRITT, CHARLES W., *Instructor in Music*
B.M., DePauw university, 1938; M.Ed., University of New Hampshire, 1942. Supervisor of music, Lowell District High school, Indiana, 1938–40; organist, choir director, First Methodist church, Crown Point, Indiana; director, Festival Chorus, Lowell, Indiana. Graduate assistant in music, 1940–42; present position, 1942– (Entered military service, July 1, 1942.)

TYRRELL, DORIS E., *Assistant Professor of Economics*
B.S., University of Minnesota, 1926; M.A., *ibid.*, 1932; graduate study, *ibid.*, 1932–34; Columbia university, summer, 1936. Teacher, Crosby-Ironton High school, 1922–25; Milwaukee university school, 1926; Stephens College for Women, 1927–31; assistant, University of Minne-

sota, 1931–33; instructor, *ibid.*, 1932–34; Ironwood Junior college, 1934–38. Instructor in economics, 1938–40; present position, 1940–

VAN TUYL, DONALD W., *Graduate Assistant in Civil Engineering*
B.S., Northeastern university, 1940. Present position, 1940–42.

WADE, ELEANOR H., *Graduate Assistant in the Department of Physical Education for Women*
B.S., The Woman's College of the University of North Carolina, 1941. Present position, 1941–42.

WADLEIGH, CLARENCE B., *State Club Leader, Extension Service*
B.S., New Hampshire college, 1918. Institute of coöperation, University of New Hampshire, 1932. 4-H county club leader, New Hampshire college, 1918–19; milk tester, New York State, 1919–20. Acting State club leader, 1920–21; present position, 1921–

WALLER, ERNEST F., *Assistant Professor of Poultry Husbandry and Poultry Pathologist, Agricultural Experiment Station*
D.V.M., Iowa State college, 1931; M.S., *ibid.*, 1939. Assistant professor, Iowa State college, 1934–40. Present position, 1941–

WALSH, JOHN S., *Associate Professor of Languages*
A.B., Harvard university, 1915; M.A., Boston university, 1928. Professional study, second semester, 1941–42. Taught in private and public high schools of Massachusetts and New Jersey. Instructor in languages, 1922–26; assistant professor, 1926–29; acting head of the department, 1929–31; present position, 1929–

WALTER, DAVID O., *Assistant Professor of Government*
A.B., Williams college, 1931; A.M., Harvard university, 1933; Ph.D., *ibid.*, 1937; J.D., University of Illinois, 1941. Instructor, Cornell university, 1933–37; University of Illinois, 1937–40. Present position, 1940–September 1, 1942. (Resigned.)

WARFEL, HERBERT E., *Instructor in Zoölogy*
A.B., Western State college, Colorado, 1926; M.S., Oklahoma university, 1928; graduate study, Cornell university, 1937–38. High school teacher in North Dakota, Colorado, Oklahoma, 1921–31; assistant professor, Massachusetts State college, 1931–39; instructor, University of Maine, summer, 1933. Biologist, New Hampshire Fish and Game commission, 1939–42. Assistant professor of zoölogy, 1939–42; present position, 1942–

WASHBURN, EMILY, *Periodicals Librarian*
B.S., Simmons college, school of social work, 1922; Graduate, Pratt Institute Library school, 1934, B.L.S., *ibid.*, 1941. Teacher, Waynflete Latin school, Portland, Maine, 1922–26; associate general secretary of Y.W.C.A., Portland, Maine, 1926–29; substitute librarian, medical library of Massachusetts General hospital, 1931; librarian of The Joseph Conrad Memorial library, Seamen's Church institute,

New York city, 1934–35. Circulation librarian, 1931–33; reference librarian, 1935–40; present position, 1940–

WEAVER, RICHARD L., *Associate Professor of Biology and Specialist in Conservation, Extension Service*
B.S., Pennsylvania State college, 1933; Ph.D., Cornell university, 1938. Instructor, Maumee Valley Country Day school, Toledo, Ohio, 1933–36; college naturalist, Dartmouth college, 1938–42. Present position, October 16, 1942–

WEBBER, LAURANCE E., *Research Assistant Professor of Industrial Engineering*
B.S., University of New Hampshire, 1934; M.E., *ibid.*, 1940. Mechanical inspector, U.P.M. Kidder Press company, Inc., 1934–37. Research assistant in industrial engineering, 1937–41; present position, 1941–

WEBSTER, ROBERT G., *Assistant Professor of English*
B.A., University of New Hampshire, 1926; M.A., *ibid.*, 1930. Student, Oxford and Cambridge universities, England, 1934–35. Professional study, second semester, 1941–42. Graduate assistant in English and assistant in publicity, 1927; instructor in English, 1927–36; present position, 1936–

WESTON, RUTH C., *Club Agent in Belknap County*
B.A., New Hampshire college, 1921. Teacher, Temple, Walpole, and Hancock, New Hampshire. Boys' and Girls' Club agent in Cheshire county, 1929–36; acting Boys' and Girls' Club agent in Belknap county, 1936–37. Present position, 1937–

WHELAN, PHILIP M., *Sergeant, Detached Enlisted Men's List, U.S.A., Assistant in Military Science and Tactics*
Present position, September 12, 1942–

WHIPPEN, NORMAN F., *Club Agent in Sullivan County*
B.S., New Hampshire college, 1918. Farmer, Chittenango, New York, 1919–20; milk tester, New York State, 1920. Boys' and Girls' Club agent, Merrimack county, University of New Hampshire Extension service, 1920–23. Boys' and Girls' Club agent, Hampshire County, Massachusetts Agricultural college, 1923–26; superintendent, Hillside School for Boys, Greenwich, Mass., 1926–27. Present position, 1928–

WIDGER, WILLIAM K., JR., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1942. Present position, 1942–November 7, 1942. (Resigned.)

WILBUR, MARY E., *Physician*
B.S., University of New Hampshire, 1933; M.D., Tufts college Medical school, 1937. Private practice, Portsmouth, New Hampshire, 1938–. Present position, 1941–42.

WILLIAMSON, DAISY D., *State Home Demonstration Leader*
B. of H.E. (hon.), Normal school, Muncie, Indiana, 1917. Study, Normal school, Terre Haute, Indiana, 1900, 1907, 1908, 1919; Huntington college, Indiana, 1916. Teacher, Mt. Vernon and Sidney, Indiana, 17 years; head of home economics department, Huntington college, 1916–19; home demonstration agent, Sullivan County, Indiana, 1919. Assistant State home demonstration leader, February–June, 1920; present position, 1920– (Died October 25, 1942.)

WILSON, HOWARD L., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1941. Present position, 1941–

WILSON, WILFRED K., *Instructor in Chemistry*
B.S., University of New Hampshire, 1939, M.S., *ibid.*, 1941. Graduate assistant in chemistry, 1939–41; present position, 1941–May 31, 1942. (Resigned.)

WILSON, W. ROSS, *Agricultural Agent in Grafton County*
B.S., Cornell university, 1912. Instructor in dairying, 1912–16; assistant professor, 1916–17; present position, 1918–

WOODRUFF, RUTH J., *Dean of Women and Associate Professor of Economics*
A.B., Bryn Mawr, 1919; A.M., *ibid.*, 1920; Ph.D., Radcliffe, 1931. Assistant superintendent, Foulke and Long institute, Philadelphia, 1917; case worker, American Red Cross, Scranton, Pennsylvania, 1919; counselor, White-Williams foundation, Philadelphia, 1920–22; employment supervisor, public schools, Philadelphia, 1922–28; teacher, Northeast Evening High school, Philadelphia, 1923–28; Social case worker, Children's hospital, Boston, 1930; social case worker, Massachusetts Memorial hospital, Boston, 1931. Dean of women and assistant professor of economics, 1931–39; present position, 1939–

WOODWORTH, HARRY C., *Professor of Agricultural Economics, Agricultural Economist, Agricultural Experiment Station and Economist, Planning, Extension Service*
B.S., University of Illinois, 1909; M.S., Cornell university, 1916. Study under social science research fellowship, Harvard university, 1929–30. High school teacher, Wells, Minnesota, 1909–13; county agent, Minnesota, 1913–15; operator stock farm, Wells, Minnesota, 1916–21; farm management demonstrator, 1921; regional chief, land use planning section, resettlement administration, 1935–36; consultant, resettlement administration, 1936–37. Agricultural economist in the Agricultural Experiment station and farm management demonstrator in the Extension service, 1921–38; professor of agricultural economics in the College of Agriculture and agricultural economist, Agricultural Experiment station, 1938–41; present position, 1941–

WOOSTER, CAROLINE S., *Graduate Assistant in Physical Education for Women*

Sargent School for Physical Education, 1926; B.S., University of New Hampshire, 1934; graduate study, *ibid.*, 1935. Supervisor, physical education, Orono, Maine, 1926–28; director, physical education, junior high school, Beckley, W. Va., 1928–30; Y.W.C.A., Newcastle, Pa., 1931–32; supervisor, physical education, Kittery, Maine, 1941–42. Student assistant, 1932–34; graduate assistant, 1934–35; assistant, 1939–40; present position, December 1, 1942–

YALE, WILLIAM, *Assistant Professor of History*
Ph.B., Sheffield Scientific school, Yale university, 1910; M.A., University of New Hampshire, 1928. Professional study, second semester, 1940–41. Private tutor, 1910–12; Standard Oil company of New York foreign service, 1913–17; special agent, department of state, 1917; American military observer, Egyptian Expeditionary Forces, 1918; expert on Arabian affairs attached to American commission to negotiate peace, 1919; technical adviser to King Crane committee, 1919; shipping and tourist business, Egypt, 1920–23; lecturing, writing, farming, 1923–27. Instructor in history, 1928–33; present position, 1933– (Entered government service, December 1, 1942.)

YEAGER, ALBERT F., *Professor of Horticulture, Horticulturist, Agricultural Experiment Station and Associate Director of the Biological Institute*
B.S., Kansas State college, 1912; M.S., Oregon Agricultural college, 1916; Ph.D., Iowa State college, 1936. Instructor, Pennsylvania State college, 1916–19; North Dakota Agricultural college, 1919–38; assistant professor, Michigan State college, 1938–39. Professor of horticulture and horticulturist, Agricultural Experiment station, 1939–41; present position, 1941–

ZIMMERMAN, OSWALD T., *Professor of Chemical Engineering*
B.S.E. (Ch.E.), University of Michigan, 1929; M.S.E., *ibid.*, 1931; Ph.D., *ibid.*, 1934. Research chemist and chemical engineer, Simmons company, Kenosha, Wisconsin, 1929–30; research assistant, department of engineering research, University of Michigan, 1930–32; research chemist, school of dentistry, University of Michigan, 1932–34; research chemist and chemical engineer, Detroit Dental Manufacturing Co., Detroit, Michigan, 1934–35 and summers of 1937 and 38. Instructor of chemical engineering, University of North Dakota, September, 1935 to February, 1936; assistant professor of chemical engineering, *ibid.*, February to September 1936; associate professor of chemical engineering, *ibid.*, 1936–38. Associate professor of chemical engineering, 1938–41; present position, 1941–

MAJOR ADMINISTRATIVE ASSISTANTS

Walter B. Adams, *Acting Manager of University Bookstore*
John H. Baker, b.s., *Acting Assistant to the Treasurer*
Maisie C. Burpee, *Secretary to the Director of the Extension Service*
E. Prescott Campbell, *Purchasing Assistant, Business Office*
Edna B. Clapp, b.s., *Secretary to the Dean of Women*
Louise M. Cobb, *House Director, Hetzel Hall*
Alice C. Currier, *House Director, Luella Pettee House*
Lillian F. Curtis, *Secretary to the President*
Gail Daly, *House Director, Grant House*
Arline B. Dame, *House Director, Fairchild Hall*
William M. Delbrouck, *Manager, Printing and Duplicating Service*
Esther M. Dunning, *House Director, Congreve Hall*
Mildred M. Flanders, *Secretary to the Dean of the College of Technology*
Dorothy A. Griffin, b.s., *Secretary to the Dean, College of Liberal Arts*
Helen F. Jenkins, *Secretary to the Faculty of the College of Liberal Arts*
Margaret R. Kauppinen, m.a., *Secretary to the Dean of Men*
Emma M. Kimball, b.s., *Assistant Manager, University Dining Hall*
Elizabeth B. Knowlton, *House Director, Commons, and Hostess of Dining Hall*
Albert D. Littlehale, *Shepherd, Agricultural Experiment Station*
Elizabeth E. McFadden, *Clerk, College of Agriculture, and Agricultural Experiment Station*
Edna A. McLellan, *House Director, Smith Hall*
Elizabeth E. Mehaffey, *Mail Clerk*
Olive B. Moore, b.r.e., *Secretary to the Treasurer*
Lucille E. Pellett, *House Director, Scott Hall*
May E. Phipps, m.a., *House Director, Congreve North*
Beatrice M. Richmond, *Cashier, Business Office*
Betty G. Sanborn, *Seed Analyst*
Ethel B. Sanborn, *House Director, Morrison House*
Marcia N. Sanders, *House Director, Bickford House*

THE UNIVERSITY OF NEW HAMPSHIRE

OBJECTIVES

Born in the humanitarian and idealistic fifties, the University of New Hampshire is dedicated to the education of the state. It conceives its duty to be of use to all and not to youth alone.

If primarily an institution for resident teaching, it also enters every shop, every hotel, every manufactory, every farm, every home in the state, for it understands the field of education to be all-inclusive.

In its classrooms, laboratories, and shops it teaches with little regard for precedent whatever is desired, but it will also strive with equal zeal to make it possible for all to find that which is desirable.

It exists not for one group nor for one class, but for all, and its buildings and its campus make it a meeting place and a rallying place where growth may come to all.

HISTORY

Seventy-seven years ago, in 1866, the State of New Hampshire accepted the provisions of the federal Morrill act and established the New Hampshire College of Agriculture and the Mechanic Arts.

This national legislation, which had been approved by President Lincoln in 1862, provided for an allotment of public lands to each state for instituting such a college. In place of land New Hampshire accepted scrip and, selling this for $80,000, founded the college at Hanover in conjunction with Dartmouth College. For a quarter of a century the institution remained a branch of Dartmouth with an average enrollment of about 25 students. In 1888 through the federal Hatch act a State Agricultural Experiment station was also established as a part of the college.

Meanwhile, there lay in a legal adviser's safe in Durham the will, made in 1856, of a farmer, Benjamin Thompson, bequeathing his entire estate to the people of New Hampshire on condition that the state establish on his land a college of agriculture. No one had known of his proposed philanthropy. The Thompson estate then amounted in land and securities to $300,000, but this was to lie untouched, at compound interest, for a period of 20 years. When, at last, in 1912 it first became available, it amounted to approximately $800,000.

When the terms of the will became known in 1890, the legislature promptly made the necessary enactments to establish the college at Durham. The enthusiastic senior class of 1891 journeyed down from Hanover to hold its commencement exercises in the college's first new building—a cow barn. As rapidly as possible, the state erected four other buildings, Thompson hall, Conant hall, Nesmith hall, and the college shops, which were ready for occupancy in 1893 by a group of 64 students, including 10 women.

In 1911 the trustees authorized the setting up of an Agricultural Extension service which was further developed by federal and state appropriations to make possible headquarters with county extension agents in each county of the state.

By 1914 constant expansion of the student body resulted in an administrative division of the college into three groups: agriculture, engineering, and arts and sciences.

Moved by a devoted alumni body and the more than 1,000 students then enrolled, the Legislature in 1923 renamed the college the University of New Hampshire, creating within it the three colleges of agriculture, technology, and liberal arts, and two years later permanently provided for its support by granting it an annual income of one mill for each dollar of the assessed valuation of all taxable property in the state.

Today the university comprises the three colleges, the Agricultural and Engineering Experiment stations, the General Extension service, the Summer school, the Graduate school, and the Forestry Summer camp in the White Mountains. The annual enrollment has now reached more than 3,400 students.

ORGANIZATION

The government of the University of New Hampshire is vested in a board of trustees, thirteen in number, of which the governor of the state, the commissioner of agriculture, and the president of the university are members *ex officiis*. Two members, one of whom must be a resident of New Hampshire, are elected by the alumni of the university, and eight members are appointed by the governor.

The university senate, a representative body elected by and from the faculty, has legislative jurisdiction in matters of student government and educational policy. Within the senate is the university council which acts in an advisory capacity to the president and serves as an executive committee between meetings of the senate. Details of the university organization are given in the current *Faculty Handbook*.

INSTRUCTION

Resident Instruction is offered in the College of Agriculture, the College of Technology, the College of Liberal Arts, the Graduate school, the department of physical education for men, the department of military science and tactics, and the Graduate school. The offerings of all these divisions except the last mentioned are described in this volume. Detailed information concerning the Graduate school and other divisions not listed above are described in special catalogs or bulletins which may be secured from the registrar.

The Summer School has been since 1922 an integral part of the university program. Prior to that time, 1894 to 1897, a Summer school in biology had been conducted. Courses are offered in the Summer school by the three colleges and the Graduate school to meet the needs of: teachers, administrators and supervisors of elementary and secondary schools;

students seeking special professional preparation or working for undergraduate or graduate degrees; students anticipating courses or supplying deficiencies; qualified and mature persons who wish courses for general cultural purposes. Qualified teachers in method and subject-matter are drawn from the university faculty and are supplemented by specialists selected for their attainments in particular fields at other institutions. The twenty-third session of the Summer school will consist of two terms: the first, from June 28 to August 7; the second, from August 9 to September 25, 1943. The catalog of the Summer school gives specific information as to courses.

In addition to the offerings available at the main campus at Durham summer instruction in marine biology and related fields is given at the Marine Zoölogical laboratory (see page 67) and in forestry and fish and game management at the Forestry Summer camp (see page 68).

University Degrees.—A student who is a candidate for a degree must meet all the requirements of his elected curriculum as set forth in the catalog for the year in which he first pursues that curriculum. He must also meet such new regulations as may be subsequently adopted by the university and made applicable to him; and he is also held responsible for such other rules or regulations as may be published in the Official Handbook for Students. The following degrees are conferred:

Graduate School—Master of science, master of arts, master of education, and master of science in engineering.

College of Agriculture—Bachelor of science.

College of Technology—Professional degrees of mechanical engineer, civil engineer, electrical engineer; bachelor of science in architecture, chemistry, chemical engineering, civil engineering, electrical engineering, mechanical engineering.

College of Liberal Arts—Bachelor of arts; bachelor of science.

Certificate

College of Agriculture—In the Applied Farming course, a certificate of graduation.

Reserve Officers Training Corps.—In coöperation with the United States War department, the university maintains two units of the Reserve Officers Training corps as a part of the federal system to provide systematic military training for school and college students and to train selected students as officers of the Reserve corps of the army.

While the War department supervises the training, details Regular, Reserve, and non-commissioned officers of the Army as instructors, and loans the necessary equipment, students undergoing this instruction and who are members of the R.O.T.C. are in no way members of the military forces of the government. They remain civilians and, as regards obligations to serve the government, are in the same category as students not members of the R.O.T.C.: that is, enrollment in the R.O.T.C. involves no additional obligations as to service.

The cadets are furnished with a uniform which is worn during military

instruction only. An expense to them is the purchase of belt, cravat, shirt and one or two text books.* Only tan shoes and tan socks are authorized to be worn with the uniform. Students (freshmen and sophomores) pursuing the basic course are issued attractive uniforms of good quality; advanced students (juniors and seniors) purchase their uniforms with an allowance provided by the government. This uniform is suitable for use after graduation upon the student's becoming a reserve officer.

Military science is a required course for all male students, not especially excused, who are members of the freshman and sophomore classes. Students of the Colleges of Liberal Arts and Agriculture are assigned to the infantry unit. Students of the College of Technology are assigned to the coast (heavy and anti-aircraft) artillery unit. At the conclusion of the first two years, those students who elect, and who are considered especially qualified, are given the opportunity to continue with the advanced course, subject to congressional limitations as to numbers. Students completing four years satisfactorily are commissioned in the Officers' Reserve corps of the United States army.

Both the coast artillery and the infantry courses include military fundamentals. The object of this training is to inculcate habits which make for success in civil as well as military pursuits; physical stamina, good carriage, courtesy, punctuality, neatness in dress and person, attention to duty, high personal integrity, and loyalty.

In addition, the coast artillery course covers the construction, use and care of artillery material, heavy guns, coast and anti-aircraft gunnery devices and motor transportation. To the engineering student this course offers, apart from the military training, an excellent opportunity to observe practical applications of his classroom work and to enlarge his view of the engineering field.

The infantry course covers the organization, equipment, tactics and administration of the basic and numerically greatest arm of the service. This course stresses theoretical and practical knowledge of personnel problems and emphasizes leadership.

Advanced students (juniors and seniors) who elect and are selected to continue with the third and fourth years, and who fulfill the required conditions including attendance at the prescribed summer camp, are allowed commutation of subsistence, a uniform allowance, travel expenses to and from camp as well as a per diem allowance while attending camp. The cash value of these for the two years is, at present, about $200. The student is not bound to remain in college nor is he bound to any military service during his course or thereafter. He is required, once having enrolled for the advanced course, to complete it as a pre-

* A deposit of $15 is required of each student having military equipment in his possession, whether registered for military science or not. At the end of the academic year or upon a student's severing his connection with the university this deposit will be refunded to him upon the satisfactory return to the university of all military property loaned except that a reasonable deduction will be made to cover any damage beyond natural wear and tear or for the loss of any of the equipment.

requisite to graduation, and to observe the rules and regulations governing the corps.

The summer camp, of six weeks' duration, is normally held at the end of the junior year. Here opportunity is offered to meet students of other colleges. The courses taken on the campus are elaborated upon with special attention to the practical side. Since the student is furnished an appropriate uniform for wear during this period, his only expense is for such personal items as he may wish to make. The Regular army or Reserve officers in charge insure proper healthful living conditions, including wholesome food, as well as proper discipline and a healthy moral tone. Medical officers guard the student's health and athletics are encouraged. These camps offer the student scope to enlarge his experience while occupied in activities, mental and physical, that minister to his development.

Enrollment of students who have passed their 26th birthday will not be made in the R.O.T.C.

No member of the active personnel of the Army, Navy, or Marine Corps of the United States, or any commissioned officer of the National Guard or Naval Militia, or Reserve officer of the military forces of the United States is eligible for membership in the R.O.T.C.

The fact that an applicant is a member of the Regular Army Reserve does not make him ineligible for enrollment providing he is otherwise qualified.

War (Pilot) Training Service Program.—Since the summer of 1940 the university has coöperated with the Civil Aeronautics Administration in the training of pilots for the armed services. Instruction in the ground course is given at the university, and flight instruction is conducted at the Laconia airport.

Engineering War Training.—In coöperation with the United States Office of Education, the university is offering short intensive engineering courses at the semitechnical level. Some of these courses prepare men and women for positions in industries engaged in production of war materials. Other courses up-grade employees who are already working in those industries. During the last two years over 300 men and women have gone directly from these intensive training courses into such war industries as machine companies, aircraft factories, shipbuilding companies, electrical service companies, and navy yards as junior draftsmen, welders, tracers, machine operators, apprentices, inspectors, radio technicians, and production assistants. In-service training has been given to over 1,700 department supervisors, architects, designers, power plant operators, radio technicians, personnel men, operating engineers, foremen, electricians, toolmakers, safety directors, foundrymen, and accountants. (Catalog describing these courses is available upon application.)

Instruction in Pottery and Woodcarving.—In coöperation with the New Hampshire League of Arts and Crafts experimental studies in

ceramics are conducted and instruction in pottery and woodcarving is offered.

Conferences, Institutes, and Short Courses.—In its endeavor to serve the needs of the state and region, the university conducts or sponsors many conferences, institutes, and short courses. To mention but a few of the more important ones, the following are selected from among those held during 1941–42: Institute of Public Affairs, Library institute, Conference on Secondary School and College Problems, Fire Defense Training Conference, New Hampshire Building Institute, Elementary Education conference, Guidance Institute, Writers' conference, Youth institute and the Young Farmers' Short Course.

Instruction of Less than College Grade is made available by the university in the Applied Farming course. The purpose of this course, organized in the College of Agriculture, is to give the greatest amount of practical training that is possible during a two-year period of time to students who cannot attempt the four-year curriculum. Directly administered as a separate unit, a trained teacher is in charge with his own staff of instructors. Assistance from any of the college departments or personnel in curriculum matters is available. Any high school graduate of good character or any student who has completed a minimum of two years of high school and is 18 years of age or over, may be admitted. Two academic years of residence and field training of supervised farm experience during the summer months are required for graduation. A special bulletin of the Applied Farming course may be secured from the registrar or from the office of the Applied Farming course.

OTHER SERVICES AND FACILITIES

The General Extension Service is designed to make available to urban and rural areas the contributions of the university's research bodies and faculty, and to coördinate activities carried on with state agencies and organizations.

Rural work in agriculture and home economics is conducted coöperatively with the United States Department of Agriculture and the county farm bureaus through a staff of 64 members. Specialists conduct demonstrations in farm management, dairying, forestry, soils and crops, poultry, horticulture, marketing, engineering, nutrition, social organization and recreation, clothing and home management, and each county has agricultural, home demonstration, and 4-H Club agents.

The General Extension service is empowered under the administration of its Director to develop extension courses with or without university credit in centers within the state; to make lecture engagements for faculty speakers; to publish all official bulletins of the university; to operate the official news bureau; to conduct the university broadcasting studio; to hold institutes either on or off campus; to conduct special short courses at the Crafts Cottage or other laboratories; and to develop the university moving picture film service and other visual education activities. Courses conducted under the General Extension service are

taught by regular members of the university's resident faculty or by staff members of coördinate rank. A catalog describing extension courses is available upon application.

The Agricultural Experiment Station is concerned with solving problems that shall contribute to a continuous improvement in the services and satisfactions of farm life. At the present time a large proportion of nearly one hundred definitely organized projects is devoted to problems incident to the war effort. The usual tests of seeds, fertilizers and soils are continued; plants and insects are identified; blood samples are tested; and post-mortem examinations of animals are made. Bulletins covering a wide range of subjects are printed for free distribution to all persons in the state who have use for them.

The Engineering Experiment Station provides engineering and research facilities for the industries of the state. The personnel and facilities of the university are available through this agency to manufacturers for the solution of technical problems.

At the present time, in coöperation with the State Planning and Development Commission, a long-range program devoted to studies of wood-waste utilization is in progress.

An unusual opportunity is provided for properly qualified undergraduate and graduate students to participate in the technological work of the Engineering Experiment Station.

The Bureau of Government Research serves as a headquarters for the New Hampshire Municipal Association and acts as a clearing house for problems of governmental administration, pooling information of university technicians and state officials to assist governing agencies.

The Biological Institute groups all plant and animal sciences together for research work and coöperates with state and federal departments and organizations in obtaining biological information. Major projects are now devoted to a long range program of conservation of natural resources, with special emphasis on wild life and health, and a biological survey of the state. In coöperation with the State of New Hampshire, the Biological Institute is conducting a survey of the resources of Great Bay and the adjacent coastal waters.

The Marine Zoölogical Laboratory, established in 1927, on Appledore Island, Isles of Shoals, is a complete unit within itself and offers summer instruction in various phases of marine biology. Located nine miles offshore from Portsmouth, the unit is provided with an abundance of marine life and affords opportunity for study and research for undergraduate or graduate students interested in teaching, biological research, or preparation for medical school. Boats and apparatus for dredging and ecological study are available as well as all types of microscopic equipment. Much of the work is conducted out of doors. Facilities include dormitories for men and women students, a faculty house, classrooms and laboratories, and a dining hall. (Not open 1943.)

THE FORESTRY SUMMER CAMP, located in the heart of the White Mountains at Passaconaway, includes a tract of 400 acres of timberland on which are examples of most of the northern forest types. The property is surrounded by the national forest which makes available to the camp more than a half million acres of the finest woodlands in the East. Students are housed in an attractive building, formerly a summer hotel, affording adequate living facilities as well as drafting rooms, laboratory, and a darkroom. The boundary of a national game area of 60,000 acres is less than a half mile from camp, and the Bartlett Experimental forest is only a short distance away. National forest operations are carried on nearby and serve for purposes of instruction. Recreational activities include swimming, fishing, tennis, and mountain climbing. There are 50 mountain peaks within a 10-mile radius. Bartlett, Conway, and North Conway villages are easily accessible.

THE HAMILTON SMITH LIBRARY serves faculty and students of the university, the townspeople of Durham, and so far as possible the people of the state through coöperation with other libraries.

The library collection now consists of 121,000 bound volumes and 80,000 pamphlets. Approximately 1,000 periodicals are received currently. The library is an official depository for United States government publications and, as such, receives most publications so available. While the major part of the book collection is housed in the main building (see page 71), certain departmental libraries have been established in other campus buildings, including the Plant and Animal Science library in Nesmith Hall, the Bureau of Government Research library in Morrill Hall, the Chemistry library in James Hall, and the DeMeritt Hall library which contains material relating to engineering, architecture, and physics. Noteworthy collections in the main library include the New Hampshire collection and the Fine Arts collection.

The Undergraduate Reading Room was opened in September 1941. Beautifully furnished, it is a commodious and comfortable reading room. It is under the direction of a Readers' Adviser whose main function is to stimulate and direct reading.

The library contains an Art center which houses the Carnegie college music set of 1,000 records, 250 books and miniature scores, a phonograph, album shelf, and index. Three sound-proof auditory rooms with phonographs enable the student to listen to the best in recorded music. The Philip Hale room, largest of the auditories, contains the desk, chair and many of the books of the late music critic and is used for group music appreciation. Other features of the art center include the permanent art collection and loan exhibitions displayed throughout the college year. An art rental plan enables students for a small fee to secure framed reprints of favorite works for use in their dormitory rooms.

Library instruction is given to incoming freshmen by the resident staff.

THE UNIVERSITY HEALTH SERVICE is devoted to the protection, improvement, and maintenance of student health. It is located in Hood House (see page 74) and includes a well-equipped outpatient clinic for

the diagnosis and treatment of ambulatory students and an infirmary for those students who require bed care. Individual health guidance is given through personal conferences with the university physicians.

Injury or illness requiring hospital confinement (other than in Hood House), services of specialists, operations, ambulance service, a special nurse or special prescription is at the expense of the student. X-ray examinations at Hood House are charged to the student at cost.

Bed patients at Hood House are charged $1.00 per day. There is no charge for office calls between the hours of 8 A.M. and 5 P.M.; at other times, there is a charge of $1.00, although this fee may be canceled by the university physician if he finds that the onset of the illness or injury occurred at such a time as to make necessary a call during this period. When a student who has been attended by the Hood House staff is asked to return for treatment or observation after hours, no fee will be charged.

The Bureau of Appointments assists seniors and alumni to secure positions after graduation. It corresponds with and interviews school superintendents, personnel managers of industrial concerns, institutional managers, and others who employ college graduates, calling to their attention seniors and alumni who are seeking positions. The bureau also assists in finding opportunities for men students for employment in and about Durham. A series of vocation days is conducted by the bureau for three days each year to inform students on the technique of job getting and some of the fields open to the college graduate.

The Psychological Service Bureau is primarily devoted to the task of providing personal guidance for those students who need assistance in solving adjustment problems of an emotional and social nature. Its services are available, also, to those who seek help in selecting a vocation.

Student Workshop. The department of the arts maintains an experimental arts laboratory in Hewitt Hall for use of all students in the university. Whether enrolled in art courses or not, students are invited to explore, under advice and assistance of a departmental representative, their creative interests and abilities. This laboratory is equipped with a complete set of power and hand tools for woodworking, a printing press with type, an air brush, silk screen printing equipment, and facilities for block printing, model building, wood carving, metalwork, etc.

Museum Collections. Though the university has no museum, there are several collections housed in various buildings. At present specimens are being collected to illustrate the zoölogy, geology, entomology, and Americana of New Hampshire. Many New Hampshire collectors and naturalists have made the university their permanent depository.

Religious Activities. Opportunities are provided in Durham for students to practice religion and to participate in religious life. Christian Work, the Newman Club, and the Hillel Club are (page 94) the agencies through which the religious interests and life are fostered among the students.

The Durham Community Church welcomes students to its many services of worship, to Sunday evening programs, and to share church activities through student affiliate membership. The pastor is *ex officio* a member of the staff of Christian Work, Inc.

The Roman Catholic Church provides a Chaplain for the Newman Club and holds Sunday Mass at ten o'clock in Murkland Auditorium.

UNIVERSITY LANDS AND BUILDINGS

University lands comprise approximately 2,300 acres. Lands at Durham total about 1,500 acres, of which some 170 acres are devoted to the campus proper and athletic fields; 316 acres to hay and mowing; 42 acres to orchards and gardens; 471 acres to forest; 464 acres to pasture; and 20 acres to ponds.

Buildings for Administration, Instruction and Research

Thompson Hall (1893), the general administration building, is named for Benjamin Thompson, benefactor of the university. It contains the offices of the president, the business office, the registrar, bureau of appointments, alumni secretary, deans of men and women, dean of the graduate school, and the officers of the General Extension service. Located on the third floor are the library and studio of the music organizations, the office and classroom of the oral English section of the English department, and the university radio studio.

Conant Hall (1893), named for John Conant of Jaffrey, a generous friend of the college, houses the departments of civil engineering and geology and the Engineering Experiment Station. A government weather observatory is located here to serve airline travel through regular daily recordings of weather conditions.

Nesmith Hall (1893, remodeled and enlarged in 1939), the headquarters of the biological institute, houses all university plant and animal science departments except dairy husbandry. One of the four original campus buildings, it has been enlarged and renovated into a modern science center, four times its former size. It is named for Judge George W. Nesmith of Franklin, a former trustee president.

Charles E. Hewitt Hall (1893) houses the laboratories in machine, wood, forge, automotive, and shop work. Located also in this building are the Photo-Visual Service including studio, laboratory, and darkrooms; the Student Workshop, the University Printing and Duplicating Service, and the cold-storage plant used by the department of horticulture for the fruit from the university orchards and as a laboratory for instruction in the handling and storage of horticultural products. It is named for Charles E. Hewitt, first dean of the College of Technology.

Morrill Hall (1902) serves as the headquarters for the College of Agriculture, the Bureau of Government Research, and the departments

of social sciences including economics and business administration, sociology, history, agricultural economics, and government. It is named for Senator Justin Morrill of Vermont, sponsor of the Land Grant act.

Ballard Hall (1905, remodeled in 1942) affords classroom, studio, and office facilities for the department of music, houses the pottery laboratory, and serves as headquarters for *The New Hampshire*, *The Granite*, and a number of student organizations.

New Hampshire Hall (1906, remodeled in 1940) provides facilities for physical education for women and for student organizations including the Hillel Club, the Newman Club, and the Student Christian Movement; it contains a lounge room, an auditorium seating 1,400 and a completely equipped stage for dramatic productions.

Hamilton Smith Library (1907) was erected by means of a union of funds left by Hamilton Smith of Durham for a town library building and funds from the Carnegie corporation and the State. In 1937 large wings were added to each side of the original building thereby doubling reading and service areas. The next year the entire second floor was remodeled to include sound-proof music listening rooms, an exhibition gallery, and a fine arts reading and reference room. In 1940 a new stack wing was added. This made possible the opening of the new Undergraduate Reading Room in September, 1941.

Dairy Building (1910) is arranged and equipped for purposes of instruction in dairy husbandry and manufacture.

DeMeritt Hall (1914), named for Albert DeMeritt of Durham, is the headquarters of the College of Technology and includes classrooms, laboratories, and offices of the departments of mechanical and electrical engineering, physics, architecture, and the arts.

Murkland Hall (1927), named for Charles Sumner Murkland, president from 1893 to 1903, is the headquarters of the College of Liberal Arts and includes classrooms and offices for the departments of English, languages, mathematics, education, and hotel administration.

Charles James Hall (1929), bearing the name of a former professor of chemistry, provides lecture rooms and laboratories for instruction and research for the departments of agricultural and biological chemistry, chemistry, and chemical engineering.

Pettee Hall (1938), named in honor of the late Dean Charles H. Pettee, houses the departments of agricultural engineering, home economics, and military science.

Textile and Craft Cottage is equipped with looms, rug frames, tools, and supplies for several types of hand craft projects.

Animal Nutrition Laboratory is maintained for the research studies in animal metabolism conducted by the Agricultural Experiment station.

Buildings and Grounds Service Building (1940) contains the office of the superintendent of properties, shops and storage rooms of the buildings and grounds service departments and the university rifle range. The university and Town of Durham fire station is also located in this building.

FARM LANDS AND BUILDINGS

The University Farm, maintained for instruction and research, includes the 42-acre horticultural farm, the poultry plant, the several livestock barns, extensive greenhouses, and the university forest. The horticultural farm has buildings of its own, an unusually fine orchard site, acreage for small fruit and vegetable production, an apiary, and a packing plant equipped with a grader and other apparatus for the handling of fruit. In the poultry unit are several houses and range facilities, a special pathological laboratory for disease diagnosis, and experimental flocks of hens and turkeys. Livestock barns include the dairy barns, providing accommodations for 120 dairy animals and containing a modern milk house; the stock barn, housing purebred herds of cattle and sheep, and thoroughbred stallions; the stable of the New Hampshire Racing commission; the horse barn; the experimental sheep barn; and the piggery. The university forest has 655 acres of old and second-growth timber and a nursery for the growing of seedling trees.

ATHLETIC FACILITIES

University Field House (1938) has a main floor area of nearly half an acre providing opportunity for indoor football and baseball practice and track. A movable wooden floor and bleachers for 2,500 spectators are installed for basketball. Offices and classrooms of the department of physical education for men are also located here.

New Hampshire Hall (1906 and 1940) accommodates the department of physical education for women (see page 71).

Lewis Fields (1936), outdoor recreational center, are named for Edward Morgan Lewis, president from 1927 to 1936. They include six fields for football, soccer, and lacrosse, four baseball diamonds, a cinder track with a 220-yard straightaway, pits and runways for jumping and vaulting, fourteen composition and six clay tennis courts, concrete bleachers seating 1,750 spectators at baseball games and concrete stands seating 5,000 spectators at football and track and field contests. The entire equipment was built in coöperation with Federal work-relief agencies. Materials used in the construction of the main field stands were provided by alumni of the university as the first project of the Alumni fund.

Brackett Field (1936), the varsity baseball field on Lewis Fields, is named in honor of William H. L. Brackett, '14, prominent student leader of his college generation who died from wounds received during the World War.

Memorial Field (1922), outdoor recreational center for women students, was the first gift of major importance from the alumni to the university and is a memorial to the eighteen New Hampshire men who lost their lives in the World War.

Swimming Pool (1938) is available for general swimming and classes of instruction. Life-guard service, maintained by the university, a graduated diving tower, and dressing and locker facilities are features of the swimming unit. The water is scientifically treated through a filtration plant. In the winter months the pool provides skating facilities.

RESIDENTIAL HALLS

Commons (1919) contains the freshman dining hall, the guests' dining room, the president's dining room, a cafeteria, a trophy and lounge room, student organization rooms, and dormitory facilities for 43 undergraduate men.

Fairchild Hall (1916) honors Edward Thomson Fairchild, president from 1912 to 1917. It furnishes accommodations for 114 undergraduate men.

East and West Halls (1918), erected by the United States government to furnish housing facilities for troops in training at the college during World War I, provide comfortable quarters at low cost for 211 men.

Bickford House (1895, remodeled and enlarged in 1943) furnishes quarters for 45 undergraduate women.

Smith Hall (1908), originally constructed through the generosity of Mrs. Shirley Onderdonk of Durham as a memorial to her mother, Mrs. Alice Hamilton Smith, furnishes rooming facilities for 76 women students.

Congreve Hall (1920). The first unit was built with funds made available through the will of Mrs. Alice Hamilton Smith of Durham and bears her daughter's name. A second unit was added in 1938, and the building completed in 1940. Congreve hall now accommodates 232 undergraduate women.

Hetzel Hall (1925), named for Ralph D. Hetzel, president from 1917 to 1927, accommodates 153 undergraduate men.

Scott Hall (1932), named for Clarence Watkins Scott, professor of history from 1879 to 1930, furnishes accommodations for 119 undergraduate women.

Elizabeth DeMeritt House (1931), named for Mrs. Elizabeth P. DeMeritt, dean of women from 1919 to 1931, and maintained for practice in home management, is a modified Cape Cod cottage, thoroughly equipped with modern household devices. It houses six resident students, two instructors, and a play school for pre-school children.

Charles Harvey Hood House (1932), an infirmary, is the gift of the late Charles Harvey Hood and Mrs. Hood of Boston. It was presented to the trustees with funds for its maintenance in 1930, the fiftieth anniversary of Mr. Hood's graduation from the University of New Hampshire. Hood house is the headquarters for the University Health service (see page 68). It is furnished in a homelike style and is completely equipped. Thirty patients may be normally accommodated in the wards and private rooms. The office of the university physician and quarters for the staff of registered nurses are located here.

Luella Pettee House (1941), named for Mrs. Luella Pettee, wife of former Dean Charles H. Pettee, accommodates thirty undergraduate women.

Grant House (1942) furnishes quarters for 14 undergraduate women.

GENERAL INFORMATION

The admissions standards and procedures that follow are those that were in effect before the war. For the most part they are still in effect, but modifications to meet war conditions and demands will be made as warranted. For example:

During the war freshmen may enter certain curriculums at the start of any of the three semesters.

To enable especially able students to prepare sooner for skilled service in the war effort, they may under certain circumstances be allowed to enter before completing all the traditional requirements of high school graduation.

METHODS OF ADMISSION

The university will admit without examination properly prepared New Hampshire students who are graduates of high schools or academies of New Hampshire that are approved by the State Board of Education, or those who are graduates of other accredited preparatory schools.

Applicants whose records do not give evidence of capacity, disposition, and preparation adequate for successful college study may be required to withdraw their applications or to submit to examinations to determine their fitness for college study. This applies directly to those who stand in the lower three-fifths of their respective classes in the secondary school, and to others concerning whose qualifications there may be doubt. In so far as is practicable, officers of the university will arrange for personal conferences with such applicants.

The number of non-state students admitted each year is limited to a small proportion of the student body. Selection of out-of-state candidates is made primarily on the basis of their high school records, but such traits as character, leadership, and initiative will be taken into account. Because of the large number of New Hampshire students needing financial assistance in the form of employment, out-of-state applicants will be expected to give evidence of reasonable financial backing.

Applicants for admission are required to fill out an application form prepared by the university. Copies of this form may be obtained from secondary school officials in New Hampshire or from the registrar of the university.

An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application. One from outside the state is required to remit $25. If the applicant is admitted to the university, his

advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. In the case of the applicant who is accepted for admission but does not enter, the advance payment will not be returned. Remittance should be made either by check or by money order payable directly to the University of New Hampshire and should be sent with the application for admission.

No applications for admission in September will be considered before the middle of the preceding February. To insure consideration before the out-of-state quota is filled, out-of-state students should file applications not later than the end of March. To insure eligibility for financial aid and a choice of dormitory rooms, in-state students should apply during the spring. It is understood that the preparatory work of students applying during the spring will be completed by the end of the school year.

Candidates for admission to the freshman class must show evidence, either by credential or examination, that they are prepared in 15 units.

An entrance unit represents one study of four or five recitations a week for one year. It is assumed that two hours of shop or laboratory work are equivalent to one hour of classroom work.

Preparatory subjects are divided into six groups. The minimum numbers of units which should be offered in each group are: Group A, English, 3; Group B, foreign language, none required; Group C, mathematics, 2 or 3* ; Group D, natural science, 1; Group E, social science (including history), 1; Group F, vocational subjects and miscellaneous, none required. Elective units may be offered from all groups, including a fourth year of English. At least 12 of the 15 units should be from Groups A, B, C, D, and E.

Cases not covered by the above statements will be decided by the Committee on Admission.

Candidates for advanced standing may be admitted on the basis of the work satisfactorily completed at the institution from which they come. Students leaving other institutions in poor scholastic standing will not be admitted.

Every candidate for admission claiming New Hampshire residence shall be required to procure a statement, signed by the town or city clerk, to the effect that his parents are residents of the town or city from which he purports to register. Students admitted from foreign countries or states other than New Hampshire shall be deemed to be non-resident students throughout the entire university course unless and until the parents shall have gained *bona fide* residence in New Hampshire.

Students entering the university must be in reasonably good health. They are given a thorough physical examination at the time of entrance.

* This must be mathematics preparing for further mathematics; commercial arithmetic and shop mathematics are classed as vocational subjects. For students wishing to pursue courses in engineering or chemistry at least 3 units of mathematics must be offered, including elementary and advanced algebra and plane and solid geometry. Students planning to follow non-scientific courses in the College of Liberal Arts may substitute 2 units of a single foreign language for the 2 units of mathematics.

FRESHMAN WEEK

SPECIAL STUDENTS

A mature student who is not a candidate for a degree, upon presenting satisfactory evidence of his ability to carry successfully the desired courses, may be admitted as a special student for one year only, upon the approval of the committee on admission.

In choosing his studies he must have the approval of the head of each department in which he elects courses, and of the deans of the colleges concerned.

No credit earned by a special student shall count toward a degree except upon approval of the committee on admission.

ADVANCED STANDING

BY TRANSFER

Candidates for advanced standing from approved institutions may be admitted by the committee on admission. Their status in the University of New Hampshire will be determined by the quantity and quality of the work completed at the institution from which they come.

(1) Such students must file the same applications for admission as required of freshmen. In addition they must furnish an official transcript of work done at institutions previously attended.

(2) All candidates for the bachelor's degree, admitted to advanced standing, must spend their last year in residence, either in course or in summer school. This requires the completion of at least 35 semester credits.

(3) Regardless of the amount of advanced standing a student may secure, in no case will he be granted a bachelor's degree until he has satisfied the full requirements of the curriculum he may elect.

BY EXAMINATION

Students twenty-five or more years of age who desire to work for a bachelor's degree may secure a substantial amount of the necessary credit by examination. Inquiries regarding the details of this arrangement should be addressed to the registrar.

FRESHMAN WEEK

Freshman week was instituted at the University of New Hampshire in 1924. It is evident from a study of the results of the activities of this week that it has served as a valuable means of adjusting freshmen to their new environment, of creating right attitudes towards college work and of minimizing the usual delays during the first few weeks of the regular term. The week also affords an opportunity for the students to learn to know each other, to organize their efforts, to work together, to play together, and to become acquainted with the campus, the buildings, the faculty and with the courses of study and the traditions of the university.

Attendance of all freshmen throughout Freshman week will be obligatory. Any prospective candidate for the freshman class who is ab-

sent from the exercises will seriously imperil his admission to the university.

The war and the consequent tightening up of the University program have lessened the length of Freshman week and curtailed some of the former activities.

FEES AND EXPENSES

Estimate of Freshman Expenses for a Semester

	High	*Average*	*Low*
Room (Dormitories)	$60.00	$40.00	$32.00
Board (at Commons)	100.00	100.00	100.00
Tuition *	80.00	80.00	45.00
Books	20.00	20.00	20.00
Laundry	18.00	10.00	7.00
Incidentals †	50.00	35.00	25.00
Total	$328.00	$285.00	$229.00

Tuition.—Tuition is $4.50 per credit for residents of New Hampshire and $7.40 per credit for non-residents. The number of credits for which the student registers will determine the tuition charge for the semester. Tuition for each semester is payable in advance. Students who find it difficult or impossible to procure the necessary funds for the full amount due for a semester may make arrangements acceptable to the treasurer for a series of payments during a semester.

Charges will be assessed for extraordinary breakage or damage of classroom or laboratory equipment.

Registration for eight or more credits entitles the student to admission to all home varsity athletic contests.

Advance Tuition Payment. — An applicant for admission who is a resident of New Hampshire is required to remit $10 with this application; one from outside the state is required to remit $25. If the applicant is admitted to the university, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. The advance payment of a student who is admitted but does not enter will not be returned.

Military Deposit.—Uniform for members of the Reserve Officers' Training corps is provided in coöperation with the Federal Government.

* If not a resident of New Hampshire add approximately $50 to high and average and $85 to low for registration for the normal number of credits per semester. If a resident and not a holder of a tuition grant, add $37.50 to low.

† Expenses for travel, clothing, etc., vary with the individual student, and should be added

A deposit of $15 is required of each student to whom military equipment is issued, refundable, less lost or damaged articles, at the time of returning military equipment.

Athletic Locker Deposit.—Every student participating in the program of physical education and athletics for men and physical education for women is required to deposit $1.00 for a locker which will be refunded upon return of the lock to the equipment room less 25 cents per semester to meet partially the expense of towel service.

Student Activity Tax.—The Student Activity tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees, is paid by each undergraduate to a duly authorized representative of the Associated Student Organizations at the time of registration. The university business office will require evidence of the payment of the tax before registration receipt is issued. The revenue from the tax provides each student with *The New Hampshire*, student newspaper; *The Granite*, university annual; student government and class activities. During 1942–43 the tax was $4.25 for men students and $4.80 for women.

Books.—Students may purchase books, classroom supplies, and other supplies at the university bookstore in Thompson hall.

Rooms.—The university has five dormitories for women and five for men. All rooms are heated, lighted and furnished. Bed linen, blankets and towels, however, are provided by the individual student. Each women's dormitory is equipped with a laundry. A service room is provided in each dormitory where grills and irons may be used with safety. Prices range from $32 to $60 a semester. Applications for rooms in the dormitories should be addressed to The Dean of Men, University of New Hampshire, Durham.

Students living in university dormitories are required to sign room contracts covering the college year.

A five-dollar ($5.00) room deposit must accompany each application, this deposit to be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage and will be returned at the close of the year or upon withdrawal.

Room rent is payable in advance. For the fall semester room rent must be paid not later than August 15, and for other semesters during the registration periods. Rooms reserved will be held only until August 15 unless the semester's rent is paid before that date.

Rooms paid for and not occupied one day after registration may be declared vacant and the room rent returned, unless the individual holding the reservation makes a written request to the dean of men to hold the room until a later date. The advance payment for the room will not be returned to those making this special request. No room will be reserved more than ten days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or families may be secured for about the same prices as for those in college dormitories.

Women students, unless living at home, are required to room in one of the women's dormitories, or in approved houses. A competent house director is in charge of each women's dormitory.

Board.—A dining hall is operated and supervised by the university for the accommodation and benefit of the students. All freshmen, whose homes are not located in Durham, are required to board at the university dining hall for the first two semesters of attendance at the university. The aim of the compulsory regulation is to insure a broad fellowship and to safeguard the health of the first-year students by offering skilled dietetic oversight in the selection and preparation of their food. The dining hall is equipped with the best appliances for cooking and serving on a large scale, and is subject to constant sanitary inspection by the university physician. Board is $100 per semester, payable at registration for each semester.

The dining hall is not operated for profit. Savings made possible by reduced costs of operation are passed along to the students in the form of reduced board charges.

A cafeteria is open to all students of the upper classes who may desire to take advantage of the moderate price and the high quality of food available at the university dining hall.

Checking Accounts.—Students are urged to arrange checking accounts in their home banks or to place money on deposit in the business office until needed, in order to avoid possible loss resulting from keeping on hand considerable sums of money. Such banking arrangements will also facilitate payment of registration bills which are due and payable during the stipulated registration periods. The business office will accept and cash student checks.

UNIVERSITY AID TO STUDENTS

SELF-SUPPORT

A great many students earn their education in part by means of their own labor during summers and while in college. During the college year 1941–42, 705 students found employment as library assistants, assistants in instructional and research laboratories, proctors in dormitories, clerks and office assistants, waiters in the dining halls, student janitors, and student workers on the farms and about the campus. Many others find employment each year in fraternities, sororities, and homes and stores in the community.

All students and prospective students are advised, however, to survey carefully their individual physical strengths and scholastic aptitudes before committing themselves to the arduous combination of intensive study and part-time employment.

Students are urged not to count too much upon earning their way the first year, and should be sure of at least $150 from other sources for each semester of attendance. Inquiries from men concerning self-support should be addressed to the Bureau of Appointments of the University.

Student Employment Committee.—In order to insure an equitable distribution of university part-time employment, a committee of the faculty is charged with the responsibility of rating students for employment. The committee accepts no responsibility for the annual placement of students on jobs. Its function is to endeavor to certify only needy students as eligible to hold positions. Application blanks, obtainable at the office of the Student Aid committee, must be filled out and each student rated before he becomes eligible for a university position. Applications for federal aid work are also handled by the Student Aid committee.

In addition, the university bureau of appointments assists in finding opportunities for men students for employment in faculty homes and about the village of Durham. In the fall and spring months freshmen may secure work several afternoons a week doing odd jobs or chores such as taking care of lawns, gardens and furnaces. By the end of freshman year they may have become familiar with opportunities to secure steady work, such as waiting on table, or serving as janitor in one of the university buildings.

Women Students.—Employment for women students, except for positions in the university offices or departments, is in the hands of the dean of women, and inquiries from women students should be addressed to her.

Freshman women are advised not to attempt to earn their room and board in private families unless they are in good physical condition and have excellent preparation for their university work.

TUITION GRANTS

In order to enable students to attend the university who would be unable to do so without some financial assistance, the trustees award 250 tuition grants annually to residents of New Hampshire who have attended college for less than two semesters. Each tuition grant pays $75 per year and is good for one year only.

Applications for these tuition grants must be returned to the Student Aid committee not later than July 15 for the fall semester; January 1 for the winter semester; and April 15 for the summer semester.

Recommendations for tuition grants may be made by the subordinate and Pomona granges, state senators, State Federation of Women's clubs, university alumni clubs, and citizens of New Hampshire.

Upon investigation and approval tuition grants will be given to those whose need appears to the committee to be the greatest.

Tuition grants will be forfeited at any time for misconduct or for failure to attain a scholastic average of 65 per cent for the first semester. A student placed on probation forfeits his tuition grant during the period of probation.

SCHOLARSHIPS

A limited number of scholarships is awarded annually to deserving students. In order to grant scholarships equitably the university requires full information of all applicants relative to the necessity for scholarship aid. Scholarship application blanks will be provided upon request to the Student Aid committee.

These scholarships will be forfeited at any time for misconduct or failure to maintain a satisfactory scholastic average. A student placed on probation forfeits his scholarship during the semester of probation.

A more detailed description of the several classes of scholarships follows:

Conant Scholarships.—These scholarships provided by the bequest of John Conant, of Jaffrey, pay $75 at present and are good for one year. By terms of the bequest they are open to men taking agricultural curriculums and preference is given to residents of Cheshire county. Application should be made to the Student Aid committee.

Nancy E. Lougee Memorial Scholarships.—Since 1921 the interest on $5,000 bequeathed by Amos D. Lougee, of Somersworth, has been expended for scholarships of $75 each. They will be assigned each year and will be good for one year only. No applications can be approved without satisfactory evidence that the candidates *would be unable to attend without the aid of the scholarship.* Until July 15 of each year, preference will be given to residents of Strafford county. Application should be made direct to the Student Aid committee.

Valentine Smith Scholarships.—Through the generosity of Hamilton Smith of Durham, the sum of $10,000 was given in 1898 to establish the Valentine Smith scholarships.

"The income thus accruing shall be given to the graduates of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission."

These are the most remunerative endowed scholarships that the institution has to offer. They pay $100 a year and are good for four years of consecutive attendance at the university provided satisfactory scholarship is maintained.

Competitive examinations for these scholarships will be held at the university at the time each group of freshmen enters. Any student who ranked in the upper fifth of his secondary school class is eligible to take these examinations without previous application. Examinations are not restricted to residents of the state. Contestants will be examined in English, American history, algebra (through quadratics), plane geometry, and either physics or chemistry.

Class Memorial Scholarships.—In accordance with a communication presented to the board of trustees by the Alumni association in 1922, each class upon graduation may establish a fund of $3,000, the interest of which will be used in payment of a class scholarship, to be awarded by a committee appointed by the president. The respective classes may forward recommendations to this committee which will investigate such recommendations before awarding the scholarships.

Scholarships shall be limited to candidates of the highest moral standards, physically sound, and preference shall be given to those who require financial aid in order to continue their education, and shall be dependent upon the same standards as govern the holding of other scholarships.

Eighteen classes are expected to establish these scholarships, and each scholarship shall be dedicated to the name of one of the eighteen New Hampshire men who died in the service of his country during the World War. Nine classes have established their scholarships to date.

They are: Forrest Eugene Adams Scholarship, Class of 1922; Paul Edward Corriveau Scholarship, Class of 1923; Pitt Sawyer Willand Scholarship, Class of 1924; George Downes Parnell Scholarship, Class of 1925; Cyril Thomas Hunt Scholarship, Class of 1926; Donald Whitney Libbey Scholarship, Class of 1927 and the Libbey family; Frank Booma Scholarship, Class of 1928; Earle Roger Montgomery Scholarship, Class of 1929; Fred Weare Stone Scholarship, Class of 1930.

Ralph D. Hetzel Interscholastic Debating Scholarships.—The Board of Trustees on December 20, 1926, set aside three scholarships each year (each for three years) to be awarded to the three interscholastic debaters who may qualify under regulations defined by the Interscholastic Debating league or by the university. These scholarships are limited to residents of New Hampshire.

Hunt Scholarship.—A special scholarship paying $75 has been established by the trustees at the request of the United States War department for the benefit of soldiers, or sons and daughters of soldiers, in

the United States army. This scholarship is named in honor of Colonel William E. Hunt, '99, and Colonel Charles A. Hunt, '01, who have rendered conspicuous and gallant service as officers of the regular army before, during, and since the World War. This scholarship will be granted each year and will be good for one year only. Application should be made direct to the Student Aid committee. The application cannot be approved without satisfactory evidence that the candidate *would be unable to attend without the aid of scholarship.* Preference will be given to a New Hampshire soldier.

Concord Alumni Scholarship Fund.—The Concord Branch of Alumni of the University of New Hampshire has established a scholarship fund. In accordance with the suggestion of the Concord branch, money paid in from year to year is employed as a part of the student loan fund of the university. Ultimately, the principal and such interest as accrues will be transferred to a special scholarship fund.

Frank B. Clark Fund.—A trust fund of $10,000 has been provided by Frank B. Clark of Dover, N. H., the income of which is to be used for the purpose of assisting and encouraging needy and worthy students who are suffering from physical impairment or deformity.

"Students impaired by the loss of an arm shall receive prior consideration.

"The benefits of this gift are to be available to students in any secondary school or college except a secondary school or college which is under the direction or control of a church or religious affiliations or preferences, and with the further understanding that students at the University of New Hampshire shall be given prior consideration."

Dads'-Hetzel Scholarship Fund.—At the second annual Dads' Day at the university, the fathers present voted to establish a scholarship fund to be known as the Dads'-Hetzel fund and subscribed $304. For the present this money will be employed as a part of the student loan fund of the university. Ultimately the principal and such interest as accrues will be transferred to a special scholarship fund.

Edmund L. Brigham Scholarships.—The income of a trust fund of $4,812 provided by the will of Edmund L. Brigham, a member of the class of 1876, is divided into two scholarships of equal sums each to be known as the Edmund L. Brigham scholarship. They will be awarded at the end of each year to the two members of the freshman class who under the pressure or necessity of having to earn a portion of their college expenses show either a constant improvement in scholarship, or a high scholastic average, or both.

New Hampshire Branch of National Civic Federation Scholarship.—From the income of a fund of $1,100, established in June, 1930 and supplemented in October, 1937, by the New Hampshire Branch of the National Civic Federation, a scholarship is to be awarded annually to the woman majoring in economics or business who, upon completion of

six semesters' work and, by excellence of scholarship, character and promise of leadership, is judged to be most worthy. The dean of the College of Liberal Arts and the two ranking members of the department of economics shall name the winner of this scholarship in each year.

S. Morris Locke Memorial Scholarship.—The income of a fund of $3,000 established by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, shall be known as the S. Morris Locke Memorial scholarship. This scholarship is to be awarded each year to the student ranking highest upon completion of six semesters' work who is majoring in chemistry, entomology, or in any work where the microscope or microscopic technique is largely employed, and who has demonstrated outstanding qualities of application, industry and initiative in any of these fields of work.

Cogswell Scholarships.—Through the generosity of the trustees of the Cogswell Benevolent Trust of Manchester 30 scholarships of $100 each will be available to members of the senior class. These scholarships will be given to members of the class whose general record of scholarship, attainments and conduct during the freshman, sophomore, and junior years are adjudged by a committee of the faculty to be most worthy. The committee will scrutinize closely the record of the junior year, and will give weight not only to the general excellence of the scholarship record, but to growth and improvement as well.

Hood Scholarships.—Through the generosity of the Charles H. Hood Dairy Foundation, there are available to qualified students in the College of Agriculture whose aims are set definitely to promote farming as a life opportunity four scholarships of $200 each. These scholarships are awarded to students who maintain high standards of scholastic excellence and strong character and, in case of competition, are assigned in preference to students who intend after graduation to take up work relating to farm milk production.

George H. Williams Fund.—The income of the fund of $9,900 bequeathed to the university by the late George H. Williams of Dover, N. H., shall be used to award scholarships to deserving and meritorious students of Dover. This income shall be divided into four annual scholarships of equal value. These scholarships, awarded for one year only and not renewable, will be granted to men and women students, residents of Dover, for either the sophomore or junior year. Eligibility shall depend upon character, meritorious scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee.

The Ordway Fund.—Through the bequest of Martha H. Ordway, of Hampstead, in 1934, the income from $2,000 will be expended each year for the benefit of indigent students from Sandown or Hampstead, if any; otherwise for the benefit of other indigent students attending the university. Application should be made to the Student Aid committee.

Charles H. Sanders Fund.—The income from a bequest of $3,000 from the estate of Charles H. Sanders, class of 1871, provides a scholarship in memory of the first class to be graduated from the university in 1871, consisting of William P. Ballard of Concord, Lewis Perkins of Hampton, and Charles H. Sanders of Penacook. This scholarship will be awarded to a needy student who has completed four semesters' work and who has excelled in scholarship or has shown marked improvement in his scholastic achievement during his first four semesters at the university. Application should be made to the Student Aid committee.

John N. Haines Scholarship.—The income from a fund of $2,475 bequeathed by John N. Haines of Somersworth will be used to provide a scholarship for a deserving student of the university. Preference will be given to a student whose home is in Somersworth. Applications should be directed to the Student Aid committee.

Harvey L. Boutwell Scholarship.—The income of a bequest of $3,000 of the late Harvey L. Boutwell of Malden, Mass., class of 1882, and member of the board of trustees from 1911 to 1929, provides a scholarship for a deserving student who would otherwise find it difficult to obtain a higher education. It will be awarded annually to a Massachusetts student, preference to be given to a resident of Malden, Mass. The determination of the award will be based on character, scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee prior to July 15.

Currier-Fisher Scholarship Fund of New Hampshire's Daughters.—The income of a gift of $3,500 in 1938, supplemented by an additional $210.50 in 1940, from New Hampshire's Daughters, is to be used for educational purposes by New Hampshire girls attending the university. Application should be made to the Student Aid committee not later than July 15.

Sears, Roebuck Agricultural Foundation Scholarships.—Through the generosity of Sears, Roebuck and Company, and in appreciation of the business received from the rural areas, several scholarships of approximately $100 each have been awarded annually since 1940 to bona fide farm boys who have given evidence of scholastic ability and who also need financial assistance to remain in college during the sophomore year. Application should be made to the Dean of the College of Agriculture.

Georg Engelhardt Scholarships.—Two scholarships will be awarded annually during the years 1941 through 1944 to the highest ranking man and woman who have completed four semesters' work. The recipient of the scholarships will be chosen by a committee of the faculty on the basis of need, scholarship, participation in extracurricular activities, leadership, and service as evidenced during the first four semesters of college. These scholarships were established in 1940 by President Fred Engelhardt in memory of his father, Georg John Engelhardt, and are valued at $150 each.

STUDENT LOAN FUND

In order to assist needy students to continue their education, the university has established a student loan fund. After proper investigation and approval by parents, loans may be granted to responsible students for tuition or other college expenses, except that freshmen holding tuition grants may borrow in addition not in excess of $25. These loans will bear interest at 2 per cent until graduation or withdrawal from the university, and 5 per cent after graduation or withdrawal and are payable as follows: $5 a month beginning one year after graduation or withdrawal; $10 a month beginning two years after graduation or withdrawal; $15 a month beginning three years after graduation or withdrawal; and a like sum each month thereafter until principal and interest are paid.

The John H. Pearson Trust.—In coöperation with the trustees of the John H. Pearson Trust, Concord, N. H., a student loan fund has been established, and is administered under the conditions governing the student loan funds of the university.

James B. Erskine Loan Fund.—In 1930 a bequest of Dr. James B. Erskine, of Tilton, provided a fund of $3,642 for loans to students; loans to bear interest at the rate of 5 per cent until paid. This fund will be reserved for members of the senior class.

S. Morris Locke Loan Fund.—Through a bequest of the late Mary D. Carbee of Haverhill, N. H., a fund has been created for loan purposes in memory of Mr. and Mrs. S. Morris Locke. The fund now totals approximately $21,000.

R. C. Bradley Loan Fund.—The New Hampshire Poultry Growers association has established a loan fund for assistance to undergraduates who have been in attendance at the university at least two years, with preference given to seniors. Loans are open only to students majoring in poultry husbandry in the College of Agriculture and are based on character, scholarship, and need of financial assistance. Applications made to the Committee on Student Aid are approved by that committee with the advice of a committee selected by the directors of the Poultry Growers association.

Charlotte A. Thompson Loan Fund.—In 1940, a bequest of $500 provided a fund for loans to students. Miss Thompson was librarian at the Durham Public Library from 1895 to 1907 and was a member of the university library staff from 1907 until her retirement in 1929.

OTHER ASSISTANCE

Luella Pettee Fund.—During the year 1939–40 as a memorial to Mrs. Charles H. Pettee, her many friends subscribed to a fund of $1,812.50, the income of which is to be used, upon approval of the dean of women, to assist directly by small gifts worthy women undergraduates in need of financial assistance.

Frederick Smyth Book Fund.—The income of a bequest of $2,000 in 1901 by Frederick Smyth, of Manchester, is applied to the purchase of books to be given annually to the most meritorious students.

PRIZES *

Bailey Prize.—To endow the prize formerly offered by C. H. Bailey, '79, and E. A. Bailey, '85, a fund is being created by winners of the prize, the income of which will continue the prize for proficiency in chemistry.

The Katherine DeMeritt Memorial Prize.—Mrs. John T. Croghan (Margaret DeMeritt, class of 1911) is the donor of a prize of $25 in memory of her sister, Katherine DeMeritt, of the class of 1908, continuing an award made by their mother, the late Dean Elizabeth P. DeMeritt. It is awarded to that junior girl who, during her three years in college, has shown the greatest aptitude for helpful leadership and cheerful loyalty combined with strength of character and scholastic attainments.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has provided $100 as a memorial to her son, a member of the class of 1893, the income of which is to be given to that senior who is most distinguished for consistent progress and achievement.

Interscholastic Debating Prize.—The University of New Hampshire Debating league was reorganized in 1921, and is under the direction of the instructor in debating and public speaking in the university. Any secondary school of the state is eligible for membership. Preliminary contests are conducted at the schools, and a final contest is held at the university to determine the winner of the league. A prize cup is awarded in rotation to the winners. Other prizes, such as medals and certificates, are awarded to individual debaters from time to time.

Interscholastic Prize Speaking Contest.—This contest, for students of any accredited high school of the state (provided they have not already won the first prize in a previous year), was first held in May, 1912. Three prizes are provided by the university for the winners.

University Inter-Fraternity Scholarship Trophy for Men.—Through the generosity of Wilfred A. Osgood, '14, who has donated trophies for similar purposes in the past, a plaque has been given, and is to be awarded each year to that fraternity whose members have the highest scholastic standing as certified by the registrar.

Dietrich Cup.—This cup was given by the class of 1916 in memory of Rosina Martha Dietrich, a member of that class, who died a few weeks before graduation. The cup is to be awarded each year to the girl who attains the highest scholarship in her junior year. The cup is

* In order to be announced at the Senior Convocation names of recipients of prizes and awards must be in the hands of the commencement committee on or before April 15.

to remain in her possession throughout her senior year and until the next winner is named.

The American Legion Award.—The New Hampshire Department of the American Legion, as a mark of recognition of the university's contribution in the World War and as an expression of its interest in national defense, offers yearly a medal to that man in the senior class who has attained the highest distinction determined by achievement in military science, athletics, and scholarship. The name of the winner will be inscribed on a trophy. This trophy, made possible by the generosity of the American Legion of this state, is to remain in the permanent possession of the university.

Chi Omega Prize.—Mu Alpha Chapter of Chi Omega awards an annual prize of ten dollars to the undergraduate woman student at the university who excels in the work of the department of sociology.

Class of 1899 Prize.—The Class of 1899 has given to the university a fund of $500, the income to be used as a cash prize to be awarded "by the faculty to the senior who in their opinion has developed the highest ideals of good citizenship."

Phi Sigma Prize.—In order to promote research in the biological sciences the local chapter of the Phi Sigma national honor fraternity offers a prize of $10 to be awarded annually to that senior who offers most promise in research in biology. The prize has been offered each year since 1921.

Phi Sigma Medal.—In order to promote high scholarship in biological sciences, the Phi Sigma national honor fraternity offers a medal to be awarded annually to that senior who ranks highest in biological courses throughout the entire four years of collegiate work. The amount of work carried in biology together with the average grade in all other courses shall be considered in making this award. It shall in no case be awarded to the recipient of the Phi Sigma prize. The medal was offered for the first time in 1938.

Hood Prizes.—Through the kindly interest and generosity of Charles H. Hood of the class of 1880, the income of funds given to the university in 1921 and in 1924 will be used for the encouragement, aid, and benefit of deserving students.

In accordance with the suggestion of the donor, for the present the income will be expended as follows:

First. *Hood Achievement Prize.*—A suitable medal will be awarded annually to that member of the senior class whom the members of the three upper classes choose as giving the greatest promise of becoming a worthy factor in the outside world through his character, scholarship, physical qualifications, personal popularity, leadership and usefulness as a man among men.

Second. *Hood Dairy Prizes.*—A part of the Hood income will be devoted each year to paying a portion of the expenses of the members of a team or teams chosen for excellence in judging dairy cattle and sent to participate in intercollegiate or other dairy contests. Suitable medals will also be provided for the individual members of such teams.

Third. *Hood Supplementary Bequest.*—The income from this bequest will be used for the purchase of a suitably inscribed trophy to become the property of the university. The names of the winners of prizes in dairy cattle judging are to be inscribed annually upon this trophy, which will thus serve as a permanent record to the institution of their skill and accomplishment.

Mask and Dagger Fund.—The income from a gift of $4,900 from Mask and Dagger Society in 1940 will perpetuate the annual prizes offered by the society for the following purposes:

Mask and Dagger Achievement Prizes of $25 each awarded each year to the three seniors who, during their college courses, have made the most outstanding artistic contributions to the dramatic work of the university.

Fairchild Memorial Prizes, of $25 each, in memory of Edward T. Fairchild, a former president of the university, awarded to the three seniors who have done the most to promote dramatics during their four years at the university.

Thomas J. Davis Prize.—By a gift of Thomas J. Davis, Duluth, Minn., a native and former resident of Durham, a fund has been provided for the establishment of dairy science prizes for competitive judging of dairy cattle by "short course students," excluding all four-year students, and allowing a suitable handicap in favor of students who are taking a course of not more than four months.

Locke Prize.—The income of a trust fund of $3,000 bequeathed by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, will be awarded at the end of each year to that junior majoring in Latin, who is adjudged by a committee of the faculty to have excelled in the study of that language. In awarding the prize the committee shall give weight not only to the average grade in Latin, but also to the general record of scholarship, other attainments and character.

Psi Lambda Award.—Psi Lambda, the home economics club, each year awards a cup or other suitable evidence of achievement to the home economics senior who has shown the greatest improvement in personality and scholarship during her four years in college.

Association of Women Students Award.—The Association of Women Students will award annually $25 to the woman student who has proved to be of value to the women's student body, and who has shown by scholarship, self-help, leadership, and loyalty that she is worthy of this award.

Alpha Zeta Scholarship Cup.—A cup is awarded annually by the Granite chapter of the fraternity of Alpha Zeta to the sophomore in the College of Agriculture who has made the highest scholastic average during his first three semesters' work. The winner will have his name engraved on the cup which will be on display in the trophy room.

General Chemistry Award.—The local chapter of Alpha Chi Sigma, professional chemistry society, engraves each year on a trophy placed in Charles James hall, the name of the freshman who secures the highest average grade in chemistry.

Phi Lambda Phi Award.—Phi Lambda Phi, physics honor society, will award annually a prize of $10 to a senior who is most deserving, as revealed by proficiency in physics and general scholarship.

The Wellman Trophy.—The Wellman trophy, given by James A. Wellman, of Manchester, a trustee of the university since 1928, to stimulate and promote interest in debating and public speaking, will be awarded annually at the end of his junior year to that student who has shown excellence and continued improvement in debating. The element of improvement will be of first importance in judging the winner. The name of the winner will be engraved on the trophy which will be on display in the Trophy room.

The Pan-Hellenic Scholarship Trophy.—A cup has been given to the University by the University of New Hampshire chapter of Pan-Hellenic to be awarded each year to the sorority whose members have maintained the highest scholastic standing during the preceding two semesters. This trophy, first awarded in 1933, remains in the possession of the sorority throughout the year and until the next winner is named.

The Mortar Board Scholarship Plaque.—The New Hampshire chapter of Mortar Board presented to the University in 1941 a scholarship plaque on which will be engraved each year the name of the woman student of the freshman class of the preceding year who attained the highest academic average.

Alpha Xi Delta Plate.—A plate will be awarded annually by the Alpha Xi Delta sorority to the senior girl who proves herself to be the best athlete in her class. The plate will be awarded on consideration of the following qualifications: good sportsmanship, physical fitness, athletic achievements, and superior skill. The cup will be awarded by a board of judges including the members of the department of physical education for women, the president of the Association of Women Students and the president of the Women's Athletic Association.

STUDENT ORGANIZATIONS

STUDENT GOVERNMENT

The Student Council is an organization of men students which serves as a liaison body between the university administration and the students, and as a representative group seeking to promote the best interests of the university. Members of the council are elected by ballot each spring.

The Association of Women Students promotes responsibility in maintaining high standards of personal conduct and encourages active coöperation in self-government. All women students are members of the association.

The Student Committee on War Activities is an organization for coördinating and fostering student activities to further the war effort.

Associated Student Organizations provides a central administration of business affairs. A committee of six, appointed by the university president, advises member groups in matters of budgeting and expenditure of monies resulting from the student activity tax, and makes recommendations to the president relative to the administration of the tax.

The Interfraternity Council, composed of fraternity representatives, regulates campus interfraternity relations.

Pan Hellenic coördinates interfraternity women's activities and regulates the rushing period.

The Advisory Committee on Athletic Awards, consisting of three undergraduates and three faculty members, acts on all recommendations for the awarding of men's athletic insignia, selects managers of varsity and freshmen sports and cheerleaders, approves and ratifies athletic records made by university athletes in intercollegiate competition, and serves in an advisory capacity to the senate committee on athletics.

The Women's Athletic Association includes all registered women students and provides opportunity for participation in extracurricular sports. The organization owns a cabin at Mendum's pond for outings and sponsors campus social events.

ACADEMIC HONORARY, PROFESSIONAL AND DEPARTMENTAL SOCIETIES

Phi Kappa Phi, national honorary, highest ranking seniors selected from all colleges.

Alpha Chi Sigma, professional, chemistry.

Alpha Kappa Delta, national honorary, sociology.

Alpha Sigma, architecture.

Alpha Zeta, national honorary, agriculture.

The University Band is composed of members of the university regiment and selected students.

The University Choir, advanced choral group.

Branch of the American Society of Civil Engineers (see course description).

The Classical Club, Latin and Greek.

The Economics Club, business, economics and secretarial students.

Branch of the American Institute of Electrical Engineers (see course description).

Engineers Club.

Forestry Club.

The French Club.

Gamma Kappa, geology.

The Glee Club has two organizations, one for men and one for women. Membership is open to undergraduates interested in choral singing who fulfill try-out requirements. The club presents several public programs a year.

The Graduate Science Society, graduate students and faculty members engaged in research in the sciences.

The Horticulture Club for students interested in horticulture.

The International Relations Club is one of over 450 chapters throughout the world assisted by the Carnegie Endowment for International Peace.

Kappa Delta Pi, honorary, education.

Junior Greeters of America. Charter No. 1 of this countrywide organization sponsored by hotel executives is operated by the students of hotel administration. Membership on this campus makes automatic the acceptance of the graduate into the parent organization, International Greeters, a very definite start towards success in the hotel industry.

Mask and Dagger is a dramatic society which makes a practical study of the drama and presents three plays each year in conjunction with English 5. Its membership includes students who have participated in plays or assisted in stage production.

Physical Education Club, an organization for men students majoring in the Physical Education Teacher Training curriculum.

Pi Gamma Mu, National, Honorary Social Science.

Branch of the American Society of Mechanical Engineers (see course description).

Minnesaenger, German.

Phi Lambda Phi, honorary, physics.

Phi Sigma, national honorary, biology.

Plant Science Club, faculty members and graduate assistants.

Poultry Club.

Psi Lambda, honorary, home economics.

The Psychology Club.

Scabbard and Blade (Company F, Sixth Regiment), national honorary, military.

Secretarial Club, students registered in the secretarial curriculum.

Sociology Club.

Tau Kappa Alpha, national honorary, debate and oratory.

SOCIAL HONORARY SOCIETIES

The Blue Key, senior men leaders.

Mortar Board, senior women leaders.

Senior Skulls, senior men leaders.

STUDENT PUBLICATIONS

The Granite is an illustrated annual published by the junior class.

The New Hampshire, semi-weekly newspaper, presents campus and alumni news and is published by a student editorial board.

The New Hampshire Student Writer, a collection of the best undergraduate prose and verse of the year, is published annually under the supervision of the department of English.

RELIGIOUS ORGANIZATIONS

The Hillel Club is an organization to bring to Jewish students a more adequate knowledge of their heritage, to make Jewish religious and cultural values vital and relevant for the college generation, and to foster friendship, coöperation, and understanding among the various religious groups on this campus.

The Newman Club, a club of Catholic Culture and Fellowship, fosters the spiritual, intellectual and social interests of Catholic students. It is a member of the Newman Club Federation. Activities include corporate communions, discussion study groups, lectures, dramatics, parties, dances, etc. A Reading Room is provided in New Hampshire Hall.

The Student Christian Movement is a fellowship of students united in the desire to understand the Christian faith and live the Christian life in realistic awareness of the needs of the day. The cabinet plans and carries out a varied program of activities to further this purpose, including vesper services, Freshman Camp, Bible study groups, student-faculty open house, and Sunday Evening Fellowship. It is a member of the World Student Christian Federation. The Service of Holy Communion is celebrated monthly in the Chapel at New Hampshire Hall.

INTEREST GROUPS

The Barnacles, students and faculty of the marine laboratory on the Isles of Shoals.

The Chess Club.

The Flying Club fosters interest in flying powered and motorless aircraft as a sport. The club maintains a Waco primary glider.

Folio, a society composed of students interested in the reading and discussion of contemporary literature.

STUDENT ORGANIZATIONS

THE LENS AND SHUTTER CLUB, organized for group study and enjoyment of photography.

MENORAH SOCIETY is the local chapter of the Intercollegiate Menorah association for the study and advancement of Jewish culture and ideals.

MIKE AND DIAL, composed of students interested in various phases of radio work—announcing, writing, and technical work.

THE NEW HAMPSHIRE CLUB, composed of men who have earned varsity athletic letters.

THE OUTING CLUB sponsors out-of-doors activities, especially mountain climbing and skiing, and conducts the annual winter carnival and the university horse show. The club owns cabins in Franconia Notch, at Jackson, and at Mendum's pond, nine miles from Durham. Throughout the school year weekly climbing or skiing trips are conducted. Membership is open to all students, faculty members and alumni.

THE POETRY WORKSHOP, a group of students interested in the study and writing of poetry.

PRESS CLUB, a group of students interested in journalism.

THE SPHINX SOCIETY, a service organization designed to promote good will between the university and visiting athletic teams. The society entertains visiting teams and aids their managers and coaches. Membership is limited to one member of the junior class from each fraternity.

THE UNIVERSITY 4-H CLUB, students who have engaged in boys' and girls' club extension work.

THE YACHT CLUB, open to students, faculty and alumni, furthers the sport of intercollegiate racing, and provides sailing facilities for members. The club owns a fleet of Town Class Junior sloops which are anchored on Great Bay, three miles from Durham.

SOCIAL ORGANIZATIONS, FRATERNITIES AND SORORITIES

THE ASSOCIATION OF WOMEN DAY STUDENTS furthers the interests of commuting women in the cultural and social activities of the university.

DORMITORY AND CLASS ORGANIZATIONS. Each of these groups is organized to promote its social activities.

THE OMVILA CLUB, an organization of women students living off campus whose purpose is to provide group social life and representation in student activities.

FRATERNITIES.*—Kappa Sigma, (1894) 1901; Sigma Alpha Epsilon, (1894) 1917; Theta Chi, (1903) 1910; Lambda Chi Alpha, (1906) 1918; Alpha Tau Omega, (1907) 1917; Phi Mu Delta, (1914) 1918; Pi Kappa Alpha, (1921) 1929; Sigma Beta, (1921); Phi Alpha, (1922) 1924; Theta Kappa Phi, (1922) 1923; Alpha Gamma Rho, 1924; Phi Delta Upsilon, (1924); Tau Kappa Epsilon, (1926) 1932.

SORORITIES.*—Chi Omega, (1897) 1915; Alpha Chi Omega, (1913) 1924; Alpha Xi Delta, (1913) 1914; Phi Mu, (1916) 1919; Kappa Delta, (1919) 1929; Theta Upsilon, (1926) 1930; Pi Lambda Sigma, 1929.

* The dates listed indicate (1) the date (in parentheses) of founding as local fraternity, and (2) the date of granting a charter to the national fraternities.

FOUR-YEAR CURRICULUMS

COLLEGE OF AGRICULTURE

M. Gale Eastman, *Dean*

DEPARTMENTS

Agricultural and Biological Chemistry
Agricultural Economics
Agronomy and Agricultural Engineering
Animal Husbandry
Dairy Husbandry
Entomology
Forestry
Horticulture
Poultry Husbandry

Requirements for Degrees

Each candidate for a degree must complete 140 semester credits and the courses prescribed in one of the major four-year curriculums.

Students graduating from the four-year curriculum in animal husbandry, dairy husbandry, teacher preparation or general agriculture must present to the dean of the College of Agriculture, at least two weeks prior to commencement, satisfactory evidence of having had practical experience in farm work, either through having lived on a farm for at least two years subsequent to the age of 12, or through having worked on a farm at least six months subsequent to the age of 16.

Students graduating from the forestry curriculum must have spent at least three months in practical forest work, in addition to attendance at an eight weeks' summer camp under supervision of the forestry department.

Students graduating from the horticulture curriculum or the poultry curriculum must have had practical experience on the college farm and elsewhere to satisfy the heads of the major departments concerned.

Teacher preparation seniors must take one semester of supervised teaching in some high school in the state designated by the state department of education.

Several fields of study in the arts are open to students in the College of Agriculture without prerequisites. The attention of students is directed especially to the cultural offerings in architecture, home economics, horticulture, music, physics, and pottery. Interested students are urged to consult Mr. George R. Thomas of the department of architecture to learn more about these courses.

Curriculums

The object of the four-year curriculums of this college is to give a broad general education and thorough training in the basic sciences as well as to develop specific technical knowledge relating to the various phases of agriculture. To this end several subjects in the Colleges of Liberal Arts

and Technology have been added to those provided by the College of Agriculture. The lecture and recitation work of the classroom in agriculture is amply supplemented in all cases by practical exercises in the laboratories and about the farm. Seminars and discussion courses also are provided for seniors or other advanced students.

Many of the graduates of the four-year curriculum return to the farm for the purpose of putting into practice the knowledge and training gained in their college courses, and many of them have become successful and prosperous citizens of their communities; others, who have no farms of their own, accept salaried positions as superintendents or foremen on large dairy, fruit, stock, or poultry farms; still others take positions as teachers of science and agriculture in our secondary schools, or as assistants in our agricultural colleges, experiment stations or extension services; and, finally, an increasingly large number continue in specialized work, here or elsewhere, toward graduate degrees.

The major curriculums from which the agricultural student may make his final selections follow. (Supplementing these, the College of Agriculture will be pleased to arrange a course of study to meet the needs of the "pre-theological major." Students looking toward possible training for the rural ministry should confer with the dean to learn of the proposed coöperation between our agricultural college and the theological seminaries.)

1. General agriculture
2. Agricultural and biological chemistry
3. Animal husbandry
4. Dairy husbandry
5. Entomology
6. Forestry
7. Horticulture
8. Poultry husbandry
9. Teacher preparation

During the freshman and sophomore years, all agricultural students pursue practically the same general outline of fundamental work. Some little variation is allowed in one or two curriculums which will become apparent as one confers with his adviser and makes out his schedule of studies. The wide variety of introductory background courses offered here is intended to give the student an insight into the various departmental offerings in agriculture. The purpose of this arrangement is twofold: (1) To acquaint the student with all phases of agriculture, even though his interests up to the time of entering college may have developed along only one line; (2) To make possible a change in the student's curriculum or field of specialization as late as the end of his sophomore year, should such an interest or opportunity become apparent to him. There are extremely practical, as well as cultural, values to be sought in such a wide range of agricultural training which may lead to unexpected opportunities in almost any position of trust and responsibility and contribute no less to greater resourcefulness in seeking desirable positions. To meet such objectives definitely and objectively without undue diffusion of effort or prolonged study in fields presumably lacking in primary interest, a variety of half-semester concentrated courses is required of each student.

The versatility thus provided is not intended as an invitation to the student to vacillate or procrastinate. An early decision in regard to the curriculum to be completed is highly desirable and is urgently recommended. Supplementary courses then serve to enrich the main objective. If, however, these first two years of work in college should enlarge one's horizon and clarify one's perspective sufficiently to enable him to make a more thoughtful and conscientious appraisal of his aspirations and opportunities, a change in curriculums can be made, even then, without serious penalty.

The general descriptions of curriculums which follow should be carefully studied.

General Agriculture.—This curriculum is offered for the student who wishes to secure a broad, general training in many important branches of agriculture without specializing unduly in any particular department. Some courses are required in the Technology and Liberal Arts colleges, and the student is encouraged to elect others. In addition to the broad general background of course work which will have been completed by the end of the sophomore year, obviously other advanced and supplementary courses will be required in the junior and senior years. However, a considerably greater choice of subject matter is allowed here than in the more specialized curriculums.

Students who expect to engage in farming will find this so-called general curriculum with its wide range of fundamental courses a most profitable one. This curriculum also prepares for extension work like that of a county agent, a boys' and girls' club leader, a marketing or farm management investigator, or a soils and crops specialist. For those expecting to specialize later in graduate work, the broad foundation of fundamental subject matter made possible by this curriculum should provide a most desirable background.

Students interested in preparing themselves for entrance into a veterinary college will register as regular students in general agriculture. A special schedule to meet the individual's needs may be permitted. Consultation with the professor of veterinary science is required before completing registration.

Agricultural and Biological Chemistry.—Students majoring in this curriculum receive training in the various branches of general chemistry and in their application to the growth and development of plants and animals. The methods used in the chemical analysis of plants and agricultural products and in the study of animal nutrition and metabolism are given especial attention. The curriculum is designed to provide a thorough foundation for those expecting to prepare themselves for teaching and research in colleges and experiment stations. A student wishing to major in this department should register as a freshman in general agriculture, and take chemistry 3 and 4; also mathematics 5 and 6 if his high school preparation is adequate.

As this is a professional and specialized field, entrance to it at the beginning of the sophomore year, and continuance in it, are conditioned on

a satisfactory record. An early conference with the head of the department is imperative.

Animal Husbandry.—This curriculum is offered to students who wish a specialized training in the practical and intelligent management, selection, breeding, and feeding of livestock, including horses, beef and dual-purpose cattle, sheep, and swine. Special attention is given to studies which will prepare students for various lines of work, including the extension service, production and sales work with feed concerns and packing plants, and the management of estates and general livestock farms.

Many have found this curriculum excellent preparation for advanced work in veterinary science, civil service, and other specialized lines.

During the junior and senior years each student is advised to elect as many courses in dairy production as possible, thus obtaining fundamental information about a closely related type of enterprise.

Various anatomical models, charts, and lantern slides, and an up-to-date livestock library are available for student use.

Herd books of the most prominent breeds are used for the purpose of familiarizing students with the methods of tracing pedigrees and with the practices of breeders' associations.

Dairy Husbandry.—Students majoring in dairy husbandry are offered specialized courses in (1) dairy production and (2) dairy products or dairy manufactures. Dairy production courses include a study of the dairy breeds and all phases of care, feeding, management, herd analysis, judging, and selection of dairy cattle. Dairy products courses include a study of market milk, tests of dairy products including the use of the Mojonnier milk tester, dairy bacteriology, and the manufacture of butter, cheese, and ice cream. The dairy herd on the campus together with the daily operating market milk pasteurizing and ice cream units in the dairy building contribute to the practical training of students in any one of several lines of the dairy industry.

The dairy husbandry laboratories, located in the dairy building and in the dairy barn, are well equipped for instructional purposes. The equipment includes power churn, power separator, pasteurizers, coolers, ice cream freezers, bottler, two mechanical refrigeration units, a homogenizer, and a soaker type bottle washer. The milk testing and bacteriological laboratories have equipment necessary for milk testing and inspection, and dairy bacteriology.

Entomology.—The department of entomology offers various courses and selections of courses for students who wish to major in entomology, and especially for students who desire to secure training through which they can later take up one or another aspect of entomology as a profession.

There are several aspects into which entomology naturally divides itself. Each of these represents a definite field of specialization, and an opportunity for professional work according to the training that the

student has had. Equipment for a professional position is based on suitable undergraduate work to be followed by more fully specialized graduate work.

Outlines of specific, suggested courses of study are available to the student on application at the department office. These outlines refer to the following specialized fields of entomological training, any one of which is offered by the department to students majoring in entomology.

General Entomology.—A broad selection of courses which furnish a suitable background for later specialization in the following: (a) life history studies of insects; (b) control of animal parasites; (c) systematic entomology; and (d) the relation of insects to their environment. Students who are interested in entomology in general, but have not yet determined what special field they might wish to enter, may take this grouping of courses.

Toxicology.—This specialized field relates particularly to the control of insects by chemical means. It is a professional field that is rapidly developing. A student who elects it will be given extensive training in chemistry as well as in entomology, and in graduate work will be expected to give considerable attention to insect physiology.

Medical Entomology.—The undergraduate training looking toward specialization in medical entomology includes courses in zoölogy and human physiology, as well as studies in the life histories of important insects that serve as the transmitting agents for various human diseases and in the means of control of such diseases through control of the insects that transmit them.

Forest Entomology.—This aspect of entomology is closely related to the study of forest practices. Students who specialize in this field will take certain courses in forestry as well as fundamental entomology and specialized studies in the life histories of insects attacking forest and shade trees.

Biologic Control.—Certain fundamentals of general entomology are taken up in the subjects studied by a student majoring in this aspect of entomology. In addition, special attention is given to the relation of various natural enemies to insects, including insect parasites and the effects of fungous and bacterial diseases upon insect life and abundance.

Forestry.—The training and instructional work in forestry is intended to meet the needs of three classes of students: (1) those who wish to secure four years' training in forestry; (2) those who wish to fit themselves for positions in the lumber business; and (3) those who desire a foundation for professional or graduate work in forestry. All students take the same forestry work during the first two years, and their courses of study as juniors and seniors depend on their records as freshmen and sophomores.

General Group.—This group includes those students who wish to secure a sound training in forestry, but who do not care to spend more than four years in college. Considerable latitude is given in the courses which the

student may elect, but his efforts are directed toward securing a good general education.

Business Group.—The student who chooses this program of study receives training in the fundamental principles of forestry, and, in addition, elects certain courses in the field of business administration.

Professional Group.—This program of study is designed to fit the student for advanced work at some other institution, where he will be able to satisfy the requirements for the degree of master of forestry in one year. Students who plan to enter the United States forest service, to become teachers, research workers, or consulting foresters, should elect this course. The requirements, however, are high for this group, and only the best students will be encouraged to undertake it.

HORTICULTURE.—The department of horticulture offers instruction which, by thorough preparation in fundamentals, fits the student for intelligent and resourceful production and marketing of fruits, vegetables, and flowers. Students of superior ability will find it possible, by supplementing their undergraduate work with postgraduate study, to prepare for professional positions in teaching, research, or extension work.

The course in ornamental horticulture and floriculture is designed to fit the student for work on large private estates, in retail florists' ranges, or with nursery companies. It does not presume to prepare professional landscape architects.

Major students in this department must elect a minimum of 25 semester credits of advanced horticultural and related courses. In addition, because fundamental to all horticultural work, the study of economics, of plant physiology, and of the control of insects and diseases is required of all students. Similarly, subject matter in other departments related to the student's chosen field of endeavor may be required at the discretion of the head of the department.

Mathematics 5 and 6 is to be preferred in the freshman year for students who expect to do graduate work. At all times electives should be carefully selected with the help of the adviser to strengthen the foundation for later special work in the chosen field.

POULTRY HUSBANDRY.—The curriculum in poultry husbandry has been designed to offer students fundamental and special training in the practical as well as professional fields of poultry. The courses are also offered to those majoring in other departments.

A brief but comprehensive period of practical work is offered for those who lack sufficient experience in the actual care and production of chicks and laying birds. All of the facilities of the university poultry plant are available for such students.

TEACHER PREPARATION.—Under the provisions of the Smith-Hughes act, the University of New Hampshire has been designated as the institution in this state for the preparation of teachers of agriculture. For further information, see description under University Teacher Preparation Curriculums, pages 164 and 171.

Early contact with the adviser is urged.

UNIVERSITY OF NEW HAMPSHIRE

Freshman Year

All Curriculums

	First Semester Credits	*Second Semester Credits*
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32	½	½
*Eng. 1 (*Elementary Written and Oral*)	0	0
Biol. 1 or Bot. 1 and Zoöl. 48 (*Basic and General*)	4	3
Chem. 1, 2 or 3, 4 (*General*)	4	4
Math., Freshman or 21, 22 (*Elements of Analysis*)	3–5	3–5
†A. H. 1, Agr. Econ. 5; Agron. 2, Ent. 6	4	4
	17–19	16–18

Sophomore Year

All Curriculums

	First Semester Credits	*Second Semester Credits*
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
‡Agr. Chem. 1 (*Introductory*) *and* 2 or 4 (*Plant; Animal*)	5	3
Econ. 1, 2 (*Principles*)	3	3
Phys. 4 (*Elements*)		4
†Hort. 1, Agr. Eng. 5; Agron. 4, D.H. 6	4	4
†For. 1, P.H. 5	4	
Elective		2
	18	18

* English 1 is a non-credit course but each student is held responsible for meeting this requirement even though excused from the exercises. See page 244.

† Half-semester courses. (Of the ten offered during the freshman and sophomore years, at least eight must be completed by all students except those in agricultural chemistry and forestry.)

‡ Agricultural chemistry 2 is required of students majoring in forestry or horticulture. Agricultural chemistry 4 is required of students majoring in animal husbandry, dairy husbandry, or poultry husbandry. Students majoring in agricultural and biological chemistry will substitute chemistry 25, 26 (*Quantitative and Qualitative*).

Note.—Forestry freshmen must take forestry 25, 26 (*Tree and Wood Identification*), agronomy 2 (*Soils*), and entomology 6 (*Principles*). Forestry sophomores must take forestry 29, 30 (*Silviculture*) and civil engineering 7 (*Surveying*).

Freshmen planning to major in agricultural and biological chemistry are required to take chemistry 3 and 4, and mathematics to include algebra, trigonometry and analytic geometry. They must consult the department head before completing registration.

Freshmen planning to major in entomology must consult with the head of that department before completing registration.

Pre-veterinary students must consult the professor of veterinary science before completing registration.

In the College of Agriculture, courses once elected become required unless dropped without penalty. If failed, they must be repeated or otherwise arranged for by petition.

COLLEGE OF AGRICULTURE

GENERAL AGRICULTURE

Junior Year

	First Semester Credits	*Second Semester Credits*
Agr. Econ. 11 (*Agricultural*)	3	
Agr. Econ. 13 (*Farm Records*)	3	
Agron. 13, 14 (*Crop Production*)	3	3
A.H. 13 (*Feeds*)	3	
Bact. 1, 2 (*General; Applied*)	4	4
Elective	1	10
	17	17

Prescribed or Recommended Electives

Agron. 15 (*Soil Utilization*)	3	
A.H. 11, 14 (*Judging*)	1	1
D.H. 27, 30 (*Butter and Cheese; Bacteriology*)	2	4
D.H. 33, 34 (*Judging*)	1	1
Ent. 51 (*Orchard; Garden*)	2	
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Zoöl. 49 (*Genetics*)	2	

Senior Year

Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	12	11
	17	17

Prescribed or Recommended Electives

Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
A.H. 19, 20 (*Horses; Beef Cattle; Sheep and Swine*)	3	3
D.H. 23, 64 (*Cattle; Milk Production*)	3	3
D.H. 65, 66 (*Market Milk; Ice Cream*)	3	3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Soc. 57 (*Rural Sociology*)	3	
Others from junior list		

UNIVERSITY OF NEW HAMPSHIRE

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Bact. 1, 2 (*General; Applied*)	4	4
Chem. 47, 48 (*Organic*)	5	5
Lang. (*French or German*)	3	3
Elective	5	5
	17	17

Prescribed or Recommended Electives

Agron. 13, 14 (*Crop Production*)	3	3
A.H. 13 (*Feeds*)	3	
Geol. 1, 2 (*Principles*)	4	4
Hort. 1 or 14 (*General; Vegetable Gardening*)	3	3
Math. 7, 8 (*Calculus*)	3	3

Senior Year

Agr. Chem. 51, 52 (*Physiological*)	5	5
Agr. Chem. 53, 54 (*Agricultural Analysis*)	4	4
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	6	5
	17	17

Prescribed or Recommended Electives

Bot. 4 (*Physiology*)		4
Chem. 55, 56 (*Theoretical Problems*)	3	3
Chem. 83, 84 (*Elementary Physical*)	5	5
Zoöl. 59, 60 (*Physiology*)	4	4

COLLEGE OF AGRICULTURE

ANIMAL HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Agron. 13, 14 (*Crop Production*)	3	3
A.H. 11, 14 (*Judging*)	1	1
A.H. 13 (*Feeds*)	3	
A.H. 15, 16 (*Veterinary Science*)	3	3
A.H. 18 (*Meat and Its Products*)		2
Bact. 1 (*General*)	4	
Zoöl. 49 (*Genetics*)	2	
Elective	1	8
	17	17

Prescribed or Recommended Electives

Agr. Econ. 11 (*Agricultural*)	3	
Agr. Econ. 13 (*Farm Records*)	3	
Agron. 15 (*Soil Utilization*)	3	
A.H. 22 (*Advanced Judging*)		1
Bact. 2 (*Applied*)		4
D.H. 33, 34 (*Judging*)	1	1
Econ. 24 (*Marketing*)		3

Senior Year

Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
A.H. 19, 20 (*Horses, Beef; Sheep, Swine*)	3	3
A.H. 51, 52 (*Breeding; Seminar*)	3	Arr.
D.H. 23, 64 (*Dairy Cattle; Milk Production*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	3	5
	17	17

Prescribed or Recommended Electives

Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Others from junior list		

UNIVERSITY OF NEW HAMPSHIRE

DAIRY HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Agron. 13, 14 (*Crop Production*)	3	3
Bact. 1 (*General*)	4	
D.H. 27, 30 (*Butter, Cheese; Bacteriology*)	2	4
D.H. 33, 34 (*Judging*)	1	1
Elective	7	9
	17	17

Prescribed or Recommended Electives

Acct. 1, 2 (*Elementary*)	4	4
Agr. Econ. 13 (*Farm Records*)	3	
A.H. 15, 16 (*Veterinary Science*)	3	3
Bact. 2 (*Applied*)		4
Zoöl. 49 (*Genetics*)	2	

Senior Year

Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
A.H. 13 (*Feeds*)	3	
D.H. 23, 64 (*Cattle, Milk Production*)	3	3
D.H. 60 (*Seminar*)		2
D.H. 62 (*Advanced Dairy Science*)		2
D.H. 65, 66 (*Market Milk; Ice Cream*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	3	1
	17	17

Prescribed or Recommended Electives

Agr. Econ. 11 (*Agricultural*)	3	
Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Others from junior list		

ENTOMOLOGY

Junior Year

	First Semester Credits	Second Semester Credits
Bact. 1, 2 (*General; Applied*)	4	4
Ent. 57, 58 (*Advanced*)	4	4
Elective	9	9
	17	17

Prescribed or Recommended Electives

Bot. 51, 54 (*Pathology; Advanced*)	3	Arr.
Chem. 25, 26 (*Quantitative and Qualitative*)	3	3
Chem. 53-54 (*Organic*)	5	5
Chem. 82 (*Physical*)		2
Ent. 54 (*Medical*)		3
Ent. 56 (*Forest*)		2
For. 27-28 (*Mensuration*) or For. 29-30 (*Silviculture*)	3	3
Lang. (*French or German*)	3	3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3	3

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Ent. 59, 60 (*Advanced*)	2–5	2–5
Lang. (*French or German*)	3	3
Elective	7–10	6–9
	17	17

Prescribed or Recommended Electives

Agr. Chem. 51-52 (*Physiological*)	5	5
Bot. 3, 4 (*Anatomy and Cytology; Physiology*)	2	4
Chem. 83-84 (*Elementary Physical*)	5	5
Zoöl. 53-54 (*Histology and Development*)	4	4

UNIVERSITY OF NEW HAMPSHIRE

FORESTRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Bot. 4 (*Physiology*)		4
Bot. 51 (*Pathology*)	3	
For. 27, 28 (*Mensuration*)	3	3
Elective	11	10
	17	17

Prescribed or Recommended Electives

Ag. Econ. 11 (*Agricultural*)	3	
Ag. Econ. 13 (*Farm Records*)	3	
Agron. 15 (*Soil Utilization*)	3	
Bot. 3, 6 (*Anatomy and Cytology; Systematic*)	2	2
C.E. 8 (*Surveying*)		2
Ent. 56 (*Forest*)		2
For. 31, 32 (*Utilization*)	3	3
For. 33, 34 (*Protection; Fish and Game*)	3	3
Lang. (*French or German*)	3	3
M.E. (S5) (*Wood Shop*) / M.E. (S12) (*Forge Shop*)		3
Zoöl. 71, 72 (*Taxonomy*)	3 or 4	3 or 4

Summer Camp

For. 42 (*Timber Survey*) 6 or 8 weeks		8 or 10
Elective		
For. 41 (*Fish and Game Management*) 2 or 8 weeks		2 or 10
For. 53 (*Wildlife Research Problems*) 8 weeks		10

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
For. 39, 40 (*Management*)	4	4
Elective	9	8
	15	15

Prescribed or Recommended Electives

Ag. Econ. 15 (*Marketing and Coöperation*)	3	
For. 35, 36 (*Thesis*)	2 or 3	2 or 3
For. 37 (*Recreation*)	3	
For. 52 (*History*)		3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Zoöl. 95, 96 (*Limnology; Conservation Problems*)	4	4
Others from junior list		

COLLEGE OF AGRICULTURE

HORTICULTURE

Junior Year

	First Semester Credits	Second Semester Credits
Bact. 1 (*General*)	4	
Bot. 51, 4 (*Pathology; Physiology*)	3	4
Hort. 44 (*Practice*)		5
Hort. 94 (*Plant Breeding*)		3
Zoöl. 49 (*Genetics*)	2	
Elective	8	5
	17	17

Prescribed or Recommended Electives

Ag. Econ. 13 (*Farm Records*)	3	
Agron. 13 (*Crop Production*)	3	
Ent. 51 (*Orchard; Garden*)	2	
Geol. 5, 6 (*Weather; Climates of World*)	2	2
Hort. 13 (*Judging in Horticulture*)	2	
Hort. 14 (*Elementary Vegetable Gardening*)		3
Hort. 27, 26 (*Ornamentals*)	3	3
Hort. 38 (*Floral Arrangement*)		1
Hort. 48 (*Beekeeping*)		2
Hort. 53 (*Orchard Fruits*)	3	
Hort. 54 (*Small Fruits*)		2
P.H. 18 (*Incubation*)		3

Senior Year

Ag. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Hort. 91, 92 (*Seminar*)	1	1
Elective	11	10
	17	17

Prescribed or Recommended Electives

Ag. Econ. 11 (*Agricultural*)	3	
Ag. Eng. 13 (*Electricity*)	3	
Bot. 6 (*Systematic*)		2
Eng. 10 (*News Writing*)		3
Hort. 39 (*Greenhouse Management*)	3	
Hort. 49 (*Beekeeping*)	2	
Hort. 61 (*Harvesting and Marketing*)	3	
Hort. 65 (*Commercial Vegetable Production*)	3	
Others from junior list		

UNIVERSITY OF NEW HAMPSHIRE

POULTRY HUSBANDRY

Junior Year

	First Semester Credits	Second Semester Credits
Agr. Econ. 13 (*Farm Records*)	3	
P.H. 17, 16 (*Judging; Breeding*)	3	2
P.H. 23, 24 (*Management; Practice*)	3	4
Zoöl. 49 (*Genetics*)	2	
Elective	6	11
	17	17

Prescribed or Recommended Electives

Agr. Eng. 13, 12 (*Electricity; Power and Machinery*)	3	2
Agron. 13, 14 (*Crop Production*)	3	3
Agron. 15 (*Soil Utilization*)	3	
A.H. 13 (*Feeds*)	3	
Bact. 1, 2 (*General; Applied*)	4	4

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
P.H. 19, 18 (*Marketing; Incubation*)	2	3
P.H. 25, 20 (*Diseases; Feeding*)	4	3
P.H. 27, 28 (*Seminar*)	1	1
Elective	8	7
	17	17

Prescribed or Recommended Electives

Agr. Econ. 15, 14 (*Marketing and Coöperation; Farm Management*)	3	3
D.H. 64 (*Milk Production*)		3
Geol. 5, 6 (*Weather; Climates of World*)	2	2
P.H. 22 (*Housing*)		2
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Others from junior list		

COLLEGE OF LIBERAL ARTS

*Edward Y. Blewett, *Dean*
Harold H. Scudder, *Acting Dean*

DEPARTMENTS

Arts
Fine arts, design, handicraft, and photography
Biology
Bacteriology, biology, botany, zoology, nursing, pre-medicine, and pre-dentistry
Economics and Business Administration
Business, economics, and secretarial studies
Education
Education and psychology
English
English and publicity
Geology
Geology, geography, and meteorology
Government
Government and pre-law
History
History and philosophy
Home Economics
Home economics, hospital dietetics, and institutional management
Hotel Administration
Languages
French, German, Greek, Latin, and Spanish
Music
Physical Education for Women
Sociology
Sociology and Social Service

Purpose and Objectives

The College of Liberal Arts, comprising fourteen departments of instruction, offers in a variety of programs of study a broad general education encompassing the principal areas of human thought and achievement except those concerned specifically with agriculture and engineering. Many of its programs of study are specialized and are organized in such manner as to give vocational training in addition to general knowledge.

The development of common interests and the coördination of educational efforts in behalf of students in the college are promoted by divisional groups, as follows: humanities, social sciences, physical sciences, biological sciences, education, home and institutional management. The personnel of each divisional group includes all faculty members assigned to departments of the college, and to departments of other colleges which are authorized to offer major programs or prescribed curriculums in the College of Liberal Arts.

The Humanities divisional group is composed of the staffs of the departments of arts, English, languages, and music. The Social Science divisional group is composed of the staffs of the departments of economics and business administration, history, government, and sociology. The

* On leave of absence.

Physical Science divisional group is composed of the staffs of the department of geology, and the departments of chemistry, mathematics and physics in the College of Technology. The Biological Science divisional group is composed of the staffs of the department of biology, and the department of entomology in the College of Agriculture. The Education divisional group is composed of the staffs of the departments of education, physical education for women, and the department of physical education for men. The Home and Institutional Management divisional group is composed of the staffs of the departments of home economics, and hotel administration.

The several general and special requirements for degrees in the College of Liberal Arts are intended to secure for the individual student the following objectives: reasonable correctness and facility in the written and oral use of English; acquaintance with the arts and the major social, economic, governmental, literary and philosophical problems of the present day, with some understanding of their historical backgrounds; broad acquaintance with the findings of science in its larger fields and some practical knowledge of the scientific method; introduction to certain areas of activity and appreciation the better to develop occupations for leisure; an enthusiasm for books; the beginning of a philosophy of life and a willingness to accept one's share of responsibility; mastery of a selected field of knowledge and considered selection or confirmation of a selection of a vocation.

The offerings of the College of Liberal Arts are divided into two groups: the General Liberal Arts curriculum and the Prescribed curriculums. The university Teacher Preparation curriculums are described on pages 162–177.

The General Liberal Arts Curriculum

The General Liberal Arts curriculum is intended primarily to give opportunity for a broad, liberal program, a general education leading to the A.B. or B.S. degree.

The degree of bachelor of science is conferred upon all students who have majored successfully in the General Liberal Arts curriculum in one of the following: bacteriology, biology, botany, chemistry, economics, education, entomology, geology, home economics, mathematics, meteorology, physics, sociology, and zoölogy. The degree of bachelor of arts is conferred upon all students who have majored successfully in the General Liberal Arts curriculum in one of the following: the arts, English, French, German, government, history, history and literature, Latin, music, psychology and Spanish.

A student enrolled in the General Liberal Arts curriculum will major as indicated above in some subject or field of knowledge. Some of these major programs offer, at least in part, direct vocational training. The general liberal arts curriculum must not be confused with the prescribed curriculums. The latter are essentially vocational in character.

The objectives, opportunities and requirements of majors in the General Liberal Arts curriculum are described in the paragraphs which

follow. It is possible, also, for students in the General Liberal Arts curriculum to arrange programs of study in addition to those described below, although such students will be held strictly to the university and college requirements of the General Liberal Arts curriculum. Students interested in arranging special programs of study should consult the dean of the college.

The Arts

The courses in this department are designed to develop intelligent enjoyment and a critical understanding of art, and to provide facilities for creative expression.

Several types of programs may be arranged for individual students. For some who have special creative abilities there are courses in painting, sculpture, ceramics, pictorial photography, and design. For others interested primarily in the application of art to business and industry, there is opportunity for study in industrial design, advertising art, photography, interior decoration, and costume construction and design. The department also offers opportunity to all interested particularly in the critical appreciation of art.

Students majoring in those other areas in which a knowledge of art is desirable, such as business, education, publicity, and hotel administration, should consider taking one or several courses in the arts.

Students interested in teaching art in the secondary schools are advised to consult the Art Education curriculum (see pages 164–165).

Students majoring in the arts are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134. They must also earn a grade of 75 or better in 27 semester credits in courses in the arts. The following courses are required for arts majors: arts 23, *Elementary Drawing and Design* (does not carry major credit); 31, 32, *Introduction to the Arts.* Courses in dramatics, literature, music and in the social sciences may be approved as related work for a major in the arts with the consent of the supervisor. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in the arts are advised to consult with the supervisor, Professor G. R. Thomas, in his office in room 304, DeMeritt hall.

Student Workshop.—The department of the arts maintains an experimental arts laboratory (Student Workshop) in Hewitt hall for use of all students in the university. Whether enrolled in art courses or not, students are invited to explore, under advice and assistance of Mr. Wesley F. Brett, their creative interests and abilities. This laboratory is equipped with a complete set of power and hand tools for woodworking, a printing press with type, an air brush, silk screen printing equipment, and facilities for block printing, model building, wood carving, and metalwork.

Bacteriology

Students interested in the study of bacteria and related microörganisms should register as majors in bacteriology. Such students may prepare themselves for positions with state, city, and private hospital laboratories or with university, experiment station, public health, and industrial organizations. The program is arranged to meet the needs of two groups of majors; i.e., those who plan to obtain employment as laboratory technicians after receiving the B.S. degree and those who plan to take graduate work in bacteriology, which is necessary for advancement and preferred employment in the field.

Students who major in bacteriology are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 132–134. They are expected also to complete with grades of 75 or better courses offered by the department and by related departments to a total of 27 semester credits. Chemistry 53–54, *Organic Chemistry*, or agricultural chemistry 5, *Organic and Biological Chemistry*, are also required for bacteriology majors but cannot be counted as part of these 27 major credits. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference. Since majors in bacteriology receive a thorough basic training in other biological sciences and in chemistry, they have considerable opportunity to select the field of work they are particularly interested in after graduation.

Students interested in majoring in bacteriology are advised to consult with the supervisor, Professor L. W. Slanetz, in his office in room 215, Nesmith hall.

Biology

Students interested in a broad training in the various life sciences are advised to major in biology. Such students will find it possible to use courses in bacteriology, botany, entomology, and zoölogy in building up a program that will fulfill their particular requirements. The field, however, is so inclusive that the majority of students will find it desirable to carry a large part of their work in one of the subdivisions such as bacteriology, botany or zoölogy. In addition to those students who desire biology for its cultural background, it is suggested that students interested in *biological laboratory technique*, *fish and game management*, *applied biology*, and *secondary school teaching* register as biology majors.

Secondary School Teaching.—Students planning to teach biology in secondary school are strongly urged to plan for cadet teaching during their senior year and if possible in preparation for this, to register for education-biology 93, which will consist of assisting in the laboratory classes in general biology. Since few positions are available in any year for the teaching of biology alone, a student should consider a program of study which may qualify him for the teaching of other sciences also.

Applied Biology (Fish and Game Management, etc.).—Students preparing for positions, the work of which involves the application of the

science of biology, such as those frequently listed by the federal civil service and by the state governments, should concentrate in the field of applied biology. The department is especially fitted for the preparation for work in fish and game management. Students preparing for professions in this group should plan to secure advanced degrees since positions in these fields are difficult to secure without post-graduate training.

Biological Laboratory Technique.—In consequence of the increasing number of intricate and lengthy procedures in the biological laboratory, the independent investigator or physician is unable to accomplish much without trained assistants. Those assistants who become specialists in certain phases of laboratory work are known as technicians. The successful technician is not a mere robot or skilled laborer but must be a person with the background and training which enables him to assume responsibility for accurate analysis. Some of the most famous scientists began their careers as technicians.

After completing his basic training in biology and chemistry, the student may find employment in many fields. The technician in a clinic or hospital may make routine urine analyses, blood and bacteriological tests and prepare sections of tissues. The private physician may employ a technician for both laboratory and office work. Nurses with training in laboratory technique are assured of excellent positions. Biological laboratories and supply houses employ technicians to make slides and other preparations for schools and museums. Many, with a year or two of experience, obtain positions in federal, state, or city public health laboratories. The government is taking more and more interest in public health and recently large sums of money were set aside for work in this field. Scientists in government positions, universities, colleges, and private foundations have technicians prepare slides and carry on many routine experiments. In smaller institutions and in experiment stations a technician may have other duties such as teaching and maintaining a dispensary. In museums they prepare slides, models, skins, and plant and animal habitat groups. Large drug companies hire technicians to test the effect of chemicals and drugs on animals. One with a mechanical training can be valuable in making and perfecting new scientific instruments.

The program which a student should follow who plans to become a laboratory technician would depend upon his objective—whether preparing to become a laboratory technician in a hospital, or a public health clinic, a doctor's assistant and secretary, or a technician in connection with some of the private industries.

Students interested in medical laboratory technique are strongly advised to plan to become medical technologists. These are highly trained technicians who have passed a course accepted as adequate by the American Medical association. This involves an exacting training including zoölogy 57–58, *Laboratory Technique;* zoölogy 53, *Histology;* chemistry 25, 26, *Quantitative and Qualitative Analysis;* chemistry 53–54,

Organic Chemistry; and agricultural chemistry 51–52, *Physiological Chemistry;* physics 1, 2; bacteriology 1, 2, *General and Applied Bacteriology;* and bacteriology 51, *Pathogenic Bacteriology and Serology.* Following graduation an additional year's work is necessary in an approved hospital school. Technologists with such training are rapidly replacing the ordinary laboratory technician.

Students interested in becoming medical secretaries or doctors' assistants should follow a program similar to that of laboratory technicians and in addition should have two years of typewriting and shorthand.

Students who major in biology are expected to meet in full the requirements of the General Liberal Arts curriculum including the completion, with a grade of 75 or better, of 27 semester credits of work in biology (exclusive of biology 1, 2). Students interested in majoring in biology are advised to consult with the supervisor, Professor C. F. Jackson, room 101, Nesmith hall.

Botany

Students interested in plant life are advised to consider registration as majors in botany. Students majoring in botany who desire to go into federal or state government services, government or private research or college teaching should prepare to undertake graduate study. Positions in state and federal work in plant disease study, crop production, and related economic fields are available. There are also positions open to graduates of the College of Liberal Arts in business and professional areas where some knowledge of botany is required. Botany has long been recognized as a basic course in the College of Agriculture, but few people have realized the importance of plants in the environment of every individual regardless of his occupation. Food, fabrics, and fuel are largely derived from plants. It is desirable, therefore, that every person get some understanding of the nature of plants.

Students who major in botany are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 132–134. They must also complete with grades of 75 or better courses offered by the department and by related departments to a total of 27 semester credits. These 27 credits may be earned in elective courses, required courses, or in both. The following courses are required of botany majors: botany 3, *Plant Anatomy and Cytology;* botany 4, *Plant Physiology;* botany 51, *Plant Pathology;* botany 6, *Systematic Botany;* chemistry 1-2 or 3-4, *General Chemistry.* Of these all but chemistry 1-2 and 3-4 carry major credit if passed with the required grade of 75 or better. Other courses in botany in addition to those listed, and also agricultural chemistry 1, 2; and zoölogy 49, *Genetics,* are courses which may be elected by students for major credit.

The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in botany are advised to consult with

the supervisor, Professor A. R. Hodgdon, in his office in room 218, Nesmith hall.

Chemistry

Students interested in the study of chemistry will find opportunities in different fields such as (1) industrial work involving the development of processes or production activities or sales work based on a scientific knowledge of the marketable product; (2) the teaching of chemistry and allied subjects in secondary schools or of chemistry in colleges; (3) graduate study for those students who are interested and particularly proficient in their undergraduate work.

The university offers two channels for the study of chemistry: majoring in the subject in the College of Liberal Arts, or enrolling in the prescribed curriculum in chemistry and chemical engineering in the College of Technology. In the College of Liberal Arts a major should complete chemistry 3-4, *General Chemistry*, and in addition other courses offered by the department in analytical, organic and physical chemistry to a minimum of 27 semester credits, each course with a grade of 75 or better. According to the student's interests, other supporting subjects may be elected to form a broad program of study and prepare for some one of the opportunities listed above. Majors in chemistry are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134.

The department is equipped to furnish the training necessary for the teaching of chemistry in the secondary school. Since, however, very few positions are available in any year for the teaching of chemistry alone, a student should consider a program of study which may qualify him for the teaching of chemistry and other sciences, and should consult Professor Iddles in James hall, and Professor A. M. Stowe of the department of education. Students interested in the teaching of chemistry in college are advised to plan on graduate study. Students interested in majoring in chemistry are advised to consult with the supervisor, Professor H. A. Iddles, in his office in room 117, James hall.

Economics

Students interested in the economic and business life of the nation, who do not desire to specialize intensively in the business curriculum (see page 137), or the secretarial curriculum (see page 142), are advised to consider registration as majors in economics. Students who intend to enter upon graduate study in economics should plan to major in this field as undergraduates. An increasing number of opportunities in business and the public service are open to young people who possess graduate training in economics.

Business positions in retail stores, chain stores, banks, sales organizations, and general business offices, insurance and other firms, have been successfully filled by graduates of the university who have majored in economics. The business curriculum, however, provides better preparation for this type of work by reason of the specialized courses which

it includes, and their sequential arrangement. A student who desires breadth in his education, plus a mild emphasis on economics, is counselled to major in the department.

The department is equipped to furnish the training necessary for the teaching of economics in secondary schools. Since, however, very few positions are available in any year for the teaching of economics alone, a student should consider a program of study which may qualify him for the teaching of economics and other social studies, and should consult the supervisor, and Professor A. M. Stowe of the department of education.

Students who major in economics are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134. They are required to complete successfully economics 1 and 2, *Principles of Economics.* They are required to complete courses in their major field to a total of 27 semester credits with a grade of 75 or better. Individual programs will be arranged to meet the needs of the individual student. For example, the student whose interests lie in the field of banking will be counselled to build his major program about economics 53, 54, *Money and Banking*, as a core, including also courses offered by the department and other departments to meet his special objective. Related courses in other departments may be counted for major credit only with the consent of the supervisor.

Students interested in majoring in economics are advised to consult with the supervisor, Professor H. W. Smith, in his office in room 101, Morrill hall. Professor Smith may assign the student, when the field of his major interest is determined, to another member of the department who is responsible for the area of concentration selected by the student and who will be his supervisor throughout the duration of his course.

Education

Students who are interested in preparing themselves for teaching in the secondary school and who do not desire to follow any of the University teacher preparation curriculums (see pp. 162–177) should consult with Professor A. M. Stowe of the department of education in room 118, Murkland hall. Under some circumstances it is possible for such students to prepare themselves for teaching as majors in the subject matter departments in which they desire to teach. In other instances, it may be wise for them to do their work as majors in education.

Majors in education are divided into three groups: *first*, those students who find themselves academically interested in the subject and who intend to continue their study in graduate school. Such are required to complete 27 semester credits in education with a grade of 75 or better.

A *second* group who major in education do so to prepare to teach in secondary schools. They also are required to complete 27 semester credits in education with grades of 75 or better, and not more than 12 credits earned in practice teaching may be counted toward the fulfillment of this major requirement. These students are also required to complete with an average grade of at least 75 (1) a teaching major of at least 24

semester credits of post-secondary school work in a subject matter department, or in a subject matter field, and (2) either a second teaching major of at least 18 semester credits or two teaching minors of 12 semester credits each.

A *third* group of majors in education are those students who are interested in teaching or in supervising in elementary schools and who are graduates of two- or three-year normal schools or teachers' colleges. They are required to complete with grades of 75 or better 12 semester credits of work in elementary education selected from the advanced courses in that subject offered in the summer school as a part of the total credits which are required of them as candidates for the degree of bachelor of science. The remainder of their major programs will be selected by such students with the advice and approval of the head of the department of education. (See special language and English requirements, page 133.)

While some of the courses offered in education are designed to be of interest to the general student, only those students who have definitely decided to prepare themselves for the teaching profession should seriously consider majoring in the department of education.

Professor Stowe is the supervisor of all majors in education. Arrangements will be made, however, to enable majors in education to be advised in particular problems by members of the staff best qualified to be of service to them.

English

Students looking forward to a career in writing or journalism, to the teaching of English in secondary schools or in universities and colleges, or those who seek a broad and liberal education with the emphasis upon the study of English and American literature are advised to register as majors in English. For students who plan to pursue graduate work in English (and such work will be very necessary for those who are to teach the subject in colleges and universities), majoring in the field as undergraduates is essential.

In preparation for many varieties of work after college, concentration in the field of English during undergraduate years may prove of great value. Particularly will this be true for those who hope for careers as writers, publishers, journalists, librarians, actors, and radio broadcasters.

In conjunction with the department of education, the department of English is prepared to furnish the training demanded for teachers of English in the secondary schools of New Hampshire and other states. While such students may well major in English, it not infrequently occurs that in the secondary schools the teacher is asked to teach other subjects with English, and therefore all who are seeking to fit themselves for such work should consult the head of the department of education as well as the head of the department of English.

Students who major in English are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on

pages 132–134. They must also earn a grade of 75 or better in 27 semester credits in courses in English. The 27 semester credits with a grade of 75 or better may be earned in elective courses, required courses or in both. The following courses are required for English majors: English 3, 4, *Survey of English Literature;* 11, 12, *Survey of American Literature;* 53, 54, *Shakespeare's Plays;* and 67, *Early English and Chaucer.* Students majoring in English who entered the university prior to September, 1939, are required to register for English 68 as well as English 67. Of these courses all but the first-mentioned (*Survey of English Literature*), carry major credit if passed with the required grade of 75 or better.

English and American history, the survey of Greek and Roman literature, the survey of modern European literature, and linguistics may be approved by the supervisor as related work for a major in English.

Students interested in majoring in English are advised to consult with the supervisor, Professor H. H. Scudder, in his office in room 109, Murkland hall. Professor Scudder may assign the student, when his field of major interest is determined, to another member of the department responsible for that area of concentration selected by the student, such as drama, writing, oral English, or teaching, who will be his supervisor throughout the duration of the course.

The department offers assistance to all who may need it in English composition. Those interested should consult Professor Robert W. Webster, room 105, Murkland hall.

Entomology

The department of entomology offers various courses for students who wish to concentrate on the study of insects, insect life, and the control of insects. Although the field of employment is limited, there are definite opportunities available to those qualified. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have concentrated in entomology. Graduate study is desirable for the student who seeks high achievement in entomology. A more intensive program in entomology may be secured in the prescribed curriculum offered in the College of Agriculture.

Students who major in entomology are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134. They are expected also to complete successfully courses offered by the department and related departments to a total of 27 semester credits, each course with a grade of 75 or better. Outlines of specific, suggested programs of study are available to the student upon request to Professor J. G. Conklin, supervisor, at his office in room 16, Nesmith hall.

Geology

The field of geology includes the earth sciences. This is not alone the study of minerals, rocks and evidences of prehistoric life. It includes

also the history of the earth from its beginning, as well as the evolution of the landscape, and other environmental features which have influenced the development of life on the earth, including man.

Students interested in the earth sciences, both those who expect to make some phase of geology their life work, and those who desire to build a program of liberal studies around a core of geological and related subjects are advised to register as majors in geology.

The search for new sources of essential mineral resources and the development of new uses for certain minerals have emphasized the need for men trained in the earth sciences. Positions as mining geologists, petroleum geologists, mine operators, state survey geologists, university and college professors of geology and mineralogy have been successfully filled by graduates of the university who have majored in geology. Other former major students are teaching in high schools or are in business, some in fields where their geologic training is useful, as in the cement and mining machine industries.

Students who major in geology are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134. They are expected also to complete geology 1 and 2, *Principles of Geology*, and in addition courses in geology or related courses approved by the supervisor to a total of 27 semester credits, each course with a grade of 75 or better. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his faculty adviser in personal conference. Thus the student seeking a broad cultural training built around a core of the earth sciences may be counselled to include geography and meteorology courses in his program. The student who plans to enter the professional field of geology, either directly upon graduation or after further graduate study, will be counselled to build his major program about geology 53, 54, *Economic Geology*, and geology 12, *Structural Geology*, and to include fundamental courses in chemistry, physics, and mathematics.

Students interested in majoring in geology are advised to consult with the supervisor, Professor T. R. Meyers, whose office is in room 205, Conant hall. After a student's major interest is determined, the advice, assistance, and counsel of one or more additional members of the department will be sought where a special area of concentration is contemplated by the student. For example, the student whose special interest lies in geographic or meteorologic fields will be assigned to the staff member responsible for these fields.

Government

By specializing in one of several programs in government, the major student may prepare himself for: (1) graduate study in political science and government, (2) teaching civics and the social sciences, (3) public administration, (4) research in government, (5) secretarial work in public affairs, (6) political journalism, (7) professional study of law, (8) graduate school training in foreign service.

In addition to the programs mentioned, a limited number of internships in public office (see soc. sci. 81, 82, page 308) have been established, which permit senior students to obtain firsthand knowledge of public service by actually working in an office in the State Capitol for a semester, for which they receive full college credit. Majors in government have also an unusual opportunity for mastering research techniques and information concerning the state and local government of New Hampshire in the Bureau of Government Research. (See pages 67, 256–257.)

The student who majors in government should meet all the requirements of the General Liberal Arts curriculum found on pages 132–134. It is recommended that all students who expect to major in government elect government 1 and 2, *Citizenship and War Problems*. A major in government consists of 27 credits of work earned with a grade of 75 or better in government, and in such related courses as may be approved by the supervisor. Not more than 9 credits earned in government 11 may be counted toward the completion of the major requirements. He should, in addition to his courses in government, elect work in English, economics, history, and sociology which are regarded as closely related fields. Each student will be counselled individually and his program of study built according to his needs.

Students interested in electing government as a major should consult the supervisor, Professor Norman Alexander, in his office in room 212, Morrill hall. Several of the programs mentioned above involve considerable work in departments other than government. In such cases the student will be advised to consult the person in charge of such work, as for example Professor A. M. Stowe in the case of future teachers of the social studies, and Professor Doris Tyrrell for secretarial work, etc. For convenience the student should first consult Professor Norman Alexander, who will see that the proper members of the faculty are consulted.

History

History, as a field in which to major, may be of interest to the following groups of students: (1) Those who wish to do college teaching in history. Graduate study is indispensable for such work, but preparation may be made for it by a certain amount of undergraduate specialization. (2) Those who plan to teach history in secondary schools. For such a position, training in other social studies is highly desirable if not absolutely necessary. The student is therefore advised to keep in touch with the department of education as well as with the department of history, with a view to satisfying teaching standards and building a well rounded program of studies. (3) Those who intend to enter other professional fields in which a considerable amount of historical knowledge is desirable. Such a field, for example, might be that of library training, in which an historical training would rank with training in literature as a background, or the increasingly important profession of archivist. (4) Any students who feel free to plan the college program without too specific reference to a vocation, and who have a special interest in history.

Students who major in history are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 132–134. They must also earn a grade of 75 or better in 27 semester credits in courses in history exclusive of History 1-2. The 27 semester credits with a grade of 75 or better may be earned in elective courses, required courses, or in both. Any two semester courses, not necessarily consecutive, of the following four, are required for history majors: History 55, 56, *The Philosophy of History*, and 67, 68, *Historical Geography and Biography.*

Any department in the College of Liberal Arts may be considered a related department, except geology, home economics, physical education for men and women, and biology.

Students planning to major in history should consult the supervisor, Professor D. C. Babcock, whose office is in room 210, Morrill hall. As a rule, the student will be assigned to another member of the department who will assist the supervisor in advising him during his college course. His program will be planned and supervised with a view to his individual needs and plans.

History and Literature

Students who desire a broad cultural education may take a combined major in history and literature. Students who plan to enter library service may also find here a desirable major. The program of this major offers an opportunity to study the history and literature together of Greece and Rome, of France, of Germany, or of Spain. A still broader survey of European history and literature is also possible. The program involves the completion of 27 semester credits with a grade of 75 or better in one of the following groups of courses, of which 12 credits should be in history, 12 in language courses, and the remaining three in either:

(a) History 11, 12; 13, 14; 55, 56
Latin 5, 6; 7, 8; 9, 10; 51, 52; 55, 56
(b) History 9, 10; 19, 20; 55, 56
Spanish 3, 4; 7, 8; 11, 12
(c) History 15, 16; 17, 18; 19, 20; 55, 56; 61, 62; 63, 64
French 11, 12; 53, 54; 63, 64
(d) History 15, 16; 17, 18; 19, 20; 55, 56; 61, 62; 63, 64
German 11, 12; 53, 54; 57, 58; 63, 64
(e) 6 credits in either Languages 1, 2 or Languages 51, 52
6 credits in French, German, Latin, or Spanish in courses numbered 7 or higher
12 credits in courses in history in the department of history groups I, II, and V.

A student who has met the major requirements in history and literature will receive the degree of A.B. with the notation "history and literature" on the Commencement program.

Students' registration cards may be signed by either Professor D. C.

Babcock, the head of the department of history, or Professor C. S. Parker, the head of the department of languages.

Students electing group (b), (c), or (d) will be expected to do a considerable part of their reading for the courses in history, in Spanish, French, or German respectively.

Home Economics

For many years it has been recognized that men who would be doctors, lawyers, ministers and engineers need specialized education. More recently it has been conceded that particular preparation should be given to girls who want to be hospital dietitians, food service directors, teachers of home economics, designers of clothing, extension workers, and followers of other women's vocations. Still more recently we have thought that successful home living, highly satisfactory to others as well as ourselves, needs special preparation also. Family life is so complex today that it is necessary for the homemaker to have a broad general educational background, as well as a knowledge of and the ability to perform, reasonably well, the technical processes ordinarily carried on in the home.

The department of home economics sponsors for the university both kinds of programs—the professional courses which meet the requirements of the professions, and the broad general programs with many electives which give a rich foundation for successful family life and good citizenship. The professional courses really train for both the professional careers and the career of homemaking, for the subject matter and methods of the former are quite applicable to the latter.

Students interested in preparation for homemaking, or in obtaining a broad, general education, particularly applicable to the needs of women, are advised to consider registration as majors in home economics. Such a program would not be as completely professional nor would it qualify the student so thoroughly as would one of the professional curriculums. A broad, general program would serve as preprofessional preparation for further training in child guidance, positions in the clothing and textile fields, salesmanship, interior decoration, and other similar lines. Girls wishing to follow such programs should consult with the supervisor, Miss Verna Moulton, in her office in room 212, Pettee hall. Several elective courses are offered for, or are open to, students who do not wish to major in home economics.

While a good many interesting and worthwhile vocations are open to home economics majors, yet there are some fields which demand prescribed curriculums. Special programs are arranged to train hospital dietitians (see p. 137), institution administrators (see p. 139), teachers of home economics (see p. 165), and extension workers (see p. 174).

Majors in home economics are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 132–134. They are expected also to complete successfully 27 semester credits with grades of 75 or better in courses in home economics, exclusive of home economics 1, 2. Related courses in other departments may

be counted for major credit with the consent of the supervisor. All students majoring in the department must complete home economics 1, 2, *Homemaking*, unless excused by the supervisor.

Languages

A major student in the department of languages may have a vocational or cultural objective. Many majors plan to enter secondary school or college teaching. For such students there is no hard and fast curriculum. The arrangement of language courses is sufficiently flexible to meet the individual's needs. As most language teachers are obliged to teach more than one language, or one language in combination with other subjects, students should not plan to concentrate in a single language and its literature but to map out a program including two languages (preferably French and Latin), or one language with a number of courses in English or history. Prospective teachers should consult the head of the department and Professor A. M. Stowe of the department of education. Some departmental majors plan to enter library service. Most library schools require two foreign languages.

Major students who do not plan to teach usually have a cultural objective. Here again the flexibility of the departmental offerings makes it possible to arrange individual programs for individual students. No single course in the department is required of all majors. Some students find a special appeal in a single foreign literature and wish to explore it thoroughly. Others find that the study of two or three languages and literatures is a broadening and stimulating experience.

For non-majors, the department offers practical courses which are a valuable aid to careers in foreign service (consular, diplomatic, commercial, military, or naval), journalism (for international news, foreign books, and the like), interpreting, translating, travel agencies, radio announcing, etc. A knowledge of foreign languages is invaluable for the historian, the architect, the musician, the artist, the political and social scientist, for any citizen interested in foreign affairs. The biologist, chemist or physicist should always be able to read foreign articles and keep up with research in his field in foreign countries. The exchange of goods and information with South America is increasing. As most graduate schools require a knowledge of one or two foreign languages, all students who may possibly do graduate work in any field should obtain a reading knowledge of French and German. The elementary courses in French, German, and Spanish are planned particularly to help students acquire a reading knowledge of the respective language; at the same time, through reading, the student learns something of the history, institutions, customs, and spirit of a foreign country. The study of Latin improves one's English and gives a firm basis for other language study.

For non-majors there are offered three courses which do not require a knowledge of a foreign language. These courses offer respectively a survey of Greek and Latin literature (in translations), a survey of modern European literatures, and an introduction to the science of linguistics.

Sophomores and juniors may pursue a major in languages; but seniors must designate French, German, Latin, or Spanish as their particular major. Elementary courses French 1-2, German 1-2, Greek 1-2, Latin 1-2, and Spanish 1-2 cannot be counted toward the fulfillment of a major. Except for this restriction, a student majoring in one language may count approved courses taken in another language. Of the 27 semester credits with a grade of 75 or better required for the B.A. degree, not more than 6 may be earned in such closely related courses in other departments as may be approved by the supervisor. The special supervisor for majors in languages and in French is Professor C. S. Parker; for majors in German, Professor J. T. Schoolcraft; for majors in Latin, Professor J. S. Walsh; for majors in Spanish, Professor J. Berzunza. All offices of the department of languages are in Murkland hall.

Attention is called to the combined major in history and literature, described on page 123 of this catalog.

Mathematics

A limited number of vocational opportunities are available to students who major in mathematics. Positions requiring a knowledge of statistics are the most numerous in this field. These are found in government agencies, business, life insurance, and in several types of research. Many problems in education, economics, sociology, medicine, genetics and other fields depend upon statistics as a tool of investigation. For an introduction to the field, the department offers mathematics 61, 62, *Introduction to Statistical Methods*. This course requires the prerequisite of one year of college mathematics or its equivalent. Many secretarial workers will find it very useful to be familiar with the fundamental principles of statistics.

The life insurance field offers opportunities to students well trained in the mathematics of finance and insurance. This field also seems to give a good basis for those who wish to do high grade work in accounting.

Students who wish to prepare to teach mathematics in the secondary school or in college may well select a major in the department. Since, however, opportunities to teach only mathematics in high schools are very limited, the student should prepare for the teaching of other subjects as well as mathematics, and should consult Professor H. L. Slobin and Professor A. M. Stowe of the department of education. Students who wish to prepare for college teaching of mathematics should plan on graduate study.

Professor H. L. Slobin, room 209, Thompson hall, should be consulted by students interested in majoring in mathematics.

The student who majors in mathematics should meet all the requirements of the General Liberal Arts curriculum found on pages 132–134, and should complete 27 semester credits of work in mathematics with a grade of 75 or better, exclusive of mathematics 1-2 and mathematics 21-22. Related courses in other departments may be counted for major credit with the consent of the supervisor.

Meteorology

The meteorology program is designed to provide basic training for those desiring to become professional meteorologists. Such courses as are provided in this program prepare the student for necessary graduate studies.

Within recent years the need for meteorologists has increased rapidly in our government services, commercial airlines, and in the teaching of meteorology.

Students who major in meteorology are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134 of the current catalog. They are expected also to complete courses in meteorology and related subjects to a total of 27 semester credits, each course with a grade of 75 or better. Those students who plan to do advanced research work in meteorology might well register for mathematics 61, 62, *Introduction to Statistical Methods*, and electrical engineering 7, *Electronics and Communications*.

Students interested in majoring in meteorology are advised to consult with Professor T. R. Meyers, room 205, Conant hall.

Music

The department of music offers a major program in the General Liberal Arts curriculum for students who desire to place a mild emphasis on music while pursuing a broad, general program of study. The study of music history, literature and appreciation gives the student cultural values which should enrich his entire life. Music study tends to increase understanding and appreciation of other fields, including the fine arts, language and literature. A major in music, however, has very limited vocational opportunities.

There is an increasing demand for qualified teachers and supervisors of music education in the public schools. Students interested in this field are counselled to follow the Music Education curriculum (see page 165).

Students who major in music are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on pages 132–134. They must also earn a grade of 75 or better in 27 semester credits in courses in music exclusive of music 11-12. The following courses are required of music majors: Music 11-12, 21-22, 37-38, 47-48. All students entering upon a major in music after September 1, 1941, are required to complete a minimum of four semester hours of credit in applied music, in addition to a first year of applied music successfully completed at the university or elsewhere.

Prospective majors in music are advised to consult with the supervisor, Professor B. W. Bergethon, in his office in room 101, Ballard hall.

Physics

Physics is perhaps the oldest of the sciences. At the same time advances in physics since 1900 have opened vast new fields and have afforded glimpses of future developments never before imagined. The

scientific method, the method of actively pursuing nature by questions put in the form of controlled experiments, has created a new world of experience. Nature has been questioned in high vacuum, at low temperature, under tremendous pressure, at incredible velocities; and by means of million-volt X-rays, and gigantic cyclotrons. The new knowledge in dozens of fields has proved exceedingly useful. The development of modern industry is a lagging but accurate measure of research developments in physical science.

Because of its subject matter and its age the science of physics stands on an exceedingly broad foundation. Hence the basic facts of physics are also the basic facts of other sciences. The study of physics is necessary for those who intend to devote their lives to some field of science. For those who are not primarily interested in science, the study of physics is perhaps the most effective way to acquire an understanding of the achievements of science, and of the meaning of the words "modern technology." The study of elementary physics is a good introduction to the methods of scientific reasoning and to the use of symbols in exact quantitative work.

Physics offers a fascinating field for concentration in the General Liberal Arts curriculum and affords an excellent general scientific training for positions in applied science such as geophysics (oil prospecting), radio engineering, aeronautics, radiology, design and development of measuring and testing equipment of all kinds. Several opportunities are open to physics majors:

(a) Research positions in industrial concerns. It is not generally known that physicists are employed by vast numbers of companies manufacturing articles as widely different as textiles, rubber, paper, radio equipment, automobiles, aircraft, pianos, and household appliances. A second degree in physics is desirable.

(b) Civil Service. In addition to the usual work for physicists (in National Bureau of Standards, Department of Agriculture, Weather Bureau, etc.), the national defense program has created a demand for more men and women widely and thoroughly trained in physics.

(c) College and university positions in teaching and research. Such positions are to be attained only after considerable graduate study. Good students can often obtain graduate assistantships in institutions which afford the advantages of financial support, university teaching, and laboratory experience, and the chance to continue with advanced study.

(d) Laboratory technicians. Biological or psychological laboratories operate and maintain electrical apparatus such as amplifiers, oscillographs, automatic time recorders, signal generators for auditory experiments, potentiometers for retinal potential work, lie detectors, and other equipment.

(e) Secondary school teaching.

The department is prepared to give a thorough training in physics with an eye toward fitting students either to take a place in industry, or

to undertake graduate study. Students who wish to major in physics are advised to consult with the supervisor, Mr. Frederick D. Bennett, whose office is in room 111, DeMeritt hall. After a student's major interest is determined, the advice and counsel of one or more additional members of the department will be sought where a special area of concentration is contemplated by the student. For example, students especially interested in secondary school teaching will be assigned to Professor H. I. Leavitt.

Students who major in physics are expected to meet in full the requirements of the General Liberal Arts curriculum which are described on pages 132–134. They are also expected to complete courses offered by the department in addition to physics 1, 2, *Introductory Physics*, up to 27 semester credits with a grade of 75 or better.

Psychology

Individual courses in psychology are designed to be of service to students who desire to increase their personal efficiency (psychology 11, *Principles of Human Behavior*); to students who may be majoring in commerce or economics (psychology 33, *Commerce;* and 36, *Personnel*); in sociology or social work (psychology 51, *Childhood;* 81, *Mental Hygiene;* and 54, *Psychopathology*); in home economics and education (psychology 51, *Childhood;* and 81, *Mental Hygiene*); or in nursing and in zoölogy in the pre-medical curriculum (psychology 81, *Mental Hygiene;* and 54, *Psychopathology*). Students interested in the subject of psychology and desiring to prepare themselves for graduate work in that subject are advised to consult with Professor A. M. Stowe in his office in room 118, Murkland hall. Psychology course offerings are described under education on pages 238–241.

In addition to opportunities to teach psychology in colleges and universities, there are some openings for psychometrists or clinical psychologists and test supervisors in psychopathic hospitals, juvenile courts, city school systems and the U. S. civil service. There is also a limited demand for counselors and guidance experts in secondary schools and colleges and for research workers and personnel experts in industry.

Students who major in psychology are expected to meet in full the requirements of the General Liberal Arts curriculum which are set forth on pages 132–134. They are required to take 27 semester credits with a grade of 75 or better in courses in psychology and in such related subjects as may be approved by the supervisor. These credits must include psychology 97, 98, *Seminar;* and psychology 31, *General Psychology*.

Publicity.—The courses in publicity, which the student will find grouped in this catalog on page 306, are those which will assist in mastering the important technique of the dissemination of ideas, as distinct from the mere expression of them. The term publicity has been selected as one out of many available (some others being propaganda, and communications) as a general heading descriptive of the knowledge which goes into the production of the newspaper, the news magazine, the illustrated

pictorial, the radio broadcast, and finally the textbook or manual of instruction. Neither advertising nor propaganda is an accurate descriptive, for the first, frankly (and the second by popular misconception) implies self-interest, from which true publicity is free.

Students interested in journalism, photography and other graphic arts, radio broadcasting, advertising, or general publicity of any sort should consider registering as majors in this subject. It should not be neglected by all who in the interests of their professions, or their churches, societies, or other institutional activities may seek the assistance of the press or the radio.

Students majoring in publicity are expected to meet in full the requirements of the General Liberal Arts curriculum, which are set forth on page 132, and in addition an elementary course in a foreign language (French, German, Spanish) other than the language offered to meet the reading test required of all in the General Liberal Arts curriculum, and English 9-10, *News Writing*. They must also complete courses offered in publicity to a total of 27 semester credits, each course with a grade of 75 or better. The courses of each major program are selected to meet the needs of the individual students, as determined by the student and his faculty adviser in personal conference.

Students interested in majoring in publicity should consult with the supervisor, Professor Harold H. Scudder, in his office in room 109, Murkland hall.

Sociology

Students who plan to make social work their professional interest are advised to follow the Social Service curriculum (see page 146). Those wishing to acquire a thorough knowledge of contemporary society, what it is, how it came to be so, the fundamental laws operative within it and the interrelation of the processes, agencies and institutions, its problems, controls and trends should consider registration as majors in sociology. It is well recognized that success in any business or profession in our complex society rests as much upon social awareness and understanding as upon technical knowledge and skill.

Students looking toward a career in law, medicine, the ministry, as well as those desiring a sociopsychological background for commercial, industrial or financial pursuits would do well to supplement their majors by basic courses in sociology.

The department is equipped to provide the necessary training for teachers of sociology in secondary schools. As such teachers usually have to teach related social studies, students should consult Professor C. W. Coulter, head of the department, and Professor A. M. Stowe of the department of education about work supplementary to the major.

Students majoring in sociology are expected to meet in full the requirements of the General Liberal Arts curriculum (see pages 132–134). They are expected to take sociology 1, *Principles of Sociology*, and 2, *Social Psychology*, and, in addition, a minimum of 27 semester credits in the major field, including sociology 75, *Methods of Social Research*, or

84, *Methods of Social Progress*, and at least 6 semester credits of advanced work in one or more of the following correlated subjects: economics, government, history, psychology, home economics, or zoölogy, depending upon their vocational interest.

Students interested in majoring in sociology are advised to consult the supervisor, Professor Coulter, in his office in room 201, Morrill hall.

Zoölogy

The study of zoölogy is that of the science of animal life; the study of the structure, functions, development, nomenclature, and classifications of the varying animal forms. The student in zoölogy may prepare himself for graduate work in this field in pure science, or he may prepare for work in zoölogy in its many applications. Of the latter, both fish and game management are examples, both important items in the conservation of our natural resources. Several of the branches of zoölogy, such as ornithology, mammalogy, and ichthyology, are themselves important fields in both pure and applied science. Entomology, another branch, is of such importance as to rank as a separate science, and as another major subject of study is treated elsewhere in this bulletin. The student who majors in zoölogy has, therefore, a great variety of subject matter in both pure science and in its economic applications, and may prepare himself for employment in either.

All students majoring in zoölogy are expected to meet the requirements of the General Liberal Arts curriculum including the completion, with a grade of 75 or better, of 27 semester credits of work in zoölogy. Related courses in other departments may be counted for major credit with the consent of the supervisor. Biology 1, 2, however, may not be counted for major credit.

Students interested in any one of the varied programs available in zoölogy are advised to consult with the supervisor, Professor C. F. Jackson, room 101, Nesmith hall.

OTHER PROGRAMS OF STUDY

Although pursuing his studies in the College of Liberal Arts in one of the major fields just outlined, the student may also prepare himself for some related objective which he may have in mind. Three of these are described below, and there is enough freedom of elective to make it possible for the student in consultation with his advisor to arrange others.

Institutional Management

The student who wishes to work in the field of institutional management (the care and maintenance of any form of household from the individual family dwelling, to the hotel, hospital, sanitarium or other housing of the many) will find in this catalog under the offerings of the departments of home economics, hotel administration, and economics and accounting a variety of courses fitted to his needs. Such students should consult for further information on this subject Professor Helen F. McLaughlin or Professor Raymond R. Starke.

Pre-Law

While the bar associations and law schools do not prescribe a specific undergraduate curriculum for future lawyers, they do recommend that a student who contemplates entering law school should plan a study program which will develop breadth of view and facility of expression. They also urge him to acquire a background of information concerning the society in which he lives and the forces which have shaped modern institutions.

The courses considered most helpful are those developing oral and written expression; dealing with man's social, economic, and political institutions; providing an understanding of the human mind; and developing the art of thinking. Finally, since the case method of study is used in law schools, courses devoted to the intensive study of the subject-matter are considered helpful as an introduction to the materials and the discipline which the student will experience in law school.

Students who plan to enter law school after graduation are advised to counsel with Professor Norman Alexander, room 212, Morrill hall, as soon as they have made their decision.

Public Health Work.—Many students become interested in public health work through their study of hygiene and sanitation. This is a rather new and growing field which demands special postgraduate training at recognized schools of public health. Students interested in this field should elect courses leading to the particular line of public health work in which they are interested; for example, training for administrative work would involve economics, sociology, and psychology, in addition to science training; training for work as sanitary inspector would involve courses in the College of Technology such as sanitary engineering. In the higher positions in this field an M.D. degree is necessary in addition to the special training.

WAR TRAINING PROGRAMS FOR WOMEN

For the duration of the war, the university has set up a series of courses to prepare women for war work. Descriptions of these are published in a separate bulletin, which may be had upon application to the Registrar.

Requirements for Degrees in the General Liberal Arts Curriculum

Each candidate for a degree in the General Liberal Arts curriculum must complete successfully 140 semester credits of which 70 must be with a grade of 70 or better and in addition must complete the requirements given below and those of the major field as stated in preceding paragraphs.

A. *General University Requirements*

Physical education for men	Freshman and sophomore years
Physical education for women	Freshman, sophomore and junior years
Military science for men	Freshman and sophomore years

B. *Special Freshman Requirements*

The completion of the following special freshman courses:
*Introduction to contemporary civilization, history 1 and 2
*A biological science (biology 1, 2), or a physical science (chemistry 1-2; †chemistry 3-4; geology 1-2; or physics 1-2)

C. *Special Language and English Requirements*

All students pursuing the General Liberal Arts curriculum are required to pass a reading test in French, German, Latin, or Spanish before graduation. This test will be based on two years of secondary school language training. Graduates of normal schools or teachers' colleges who are pursuing the General Liberal Arts curriculum to qualify for a degree in the field of elementary education, are exempt from the language requirement.

In addition to meeting the requirements of English 1, six semester credits of English are required for graduation. Not all English courses may be used to meet this requirement. See pages 245–250.

D. *Group Requirements*

Students are required to complete one year, elected from each of the following three groups of courses. Not less than one year's work in any given course shall count toward the fulfillment of this requirement.

‡ Group I:
(a) Mathematics
(b) History
(c) English, French, German, Greek, Latin, Spanish

Group II:
A biological science (biology 1, 2) or a physical science (chemistry 1, 2; † chemistry 3, 4; geology 1, 2; or physics 1, 2). Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

§ Group III:
Economics, education, government, psychology, philosophy, sociology.

* Not counted toward fulfillment of major or group requirements.
† Chemistry 3–4 is required for pre-medical students and recommended for all who intend to take advanced work in sciences.
‡ No portion of the six semester credits of English specified in paragraph C above may be used to substitute for English in Group 1.
§ Psychology 11 and education 42 may be combined to meet this requirement. In all other cases the year's work must be in the same subject.

E. *Major Requirements*

Each student pursuing the General Liberal Arts curriculum shall select before the end of the second semester of the freshman year a major department in which he must pass courses to a total of 27 semester credits with a grade of 75 or better. Courses in other departments closely related to the major courses may be counted with the consent of the major adviser. Departments may designate in the catalog in their descriptions of courses those which will not count for major credit.

F. *Miscellaneous Regulations and Information Pertaining to All Students in the College of Liberal Arts*

1. Seventeen to 18 semester credits will constitute a normal semester program. Any student registering for less than 15 or more than 20 semester credits must receive the permission of the dean.

2. Students who are *bona fide* candidates for teaching positions may use physics 15, 16 to fulfill the physical science requirement, with the permission of the head of the department of education and the dean of the college. Generally, only students preparing to teach English, languages, or the social studies may be permitted to make this substitution.

3. All freshmen in the College of Liberal Arts are assigned on registration to advisers who counsel them until they have selected major fields or prescribed curriculums.

4. To substitute in his program other courses for those required of him there are special regulations. The student should consult his adviser.

5. Students in both the General Liberal Arts curriculum and prescribed curriculums are advised against over-specialization. Although no attempt is made to limit by regulation the number of courses in a major or the professional courses in a prescribed curriculum, more than 40 semester credits in courses in the major subject, or more than 72 semester credits in professional courses in a prescribed curriculum are deemed to constitute excessive concentration. Supervisors will counsel students who seem to be concentrating to their detriment to elect courses more likely to contribute to the breadth of their education. The dean of the college will consult with the supervisors with regard to over-specialization as it may appear in the programs of individual students.

COLLEGE OF LIBERAL ARTS

GENERAL LIBERAL ARTS CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32 (*For men*)	½	½
Phys. Ed. 1, 2 (*For women*)	2	2
Hist. 1-2 (*Introduction to Contemporary Civilization*)	4	4
†A biological science (*Biol. 1, 2*) or a physical science (*Chem. 1, 2;* ★*Chem. 3, 4; Geol. 1, 2; or Phys. 1, 2*)	4	4
Electives to meet semester requirements		
	17	17

† Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa.*

★ Chemistry 3, 4 is required of pre-medical students and recommended for all who intend to take advanced work in sciences.

SOPHOMORE YEAR

	First Semester Credits	Second Semester Credits
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*For men*)	½	½
Phys. Ed. 3, 4 (*For women*)	1	1
*Eng.	3	3
Elect one year's work from each of the three following groups:		
Group I. Math. (*One year*)	3	3
Hist. (*One year*)	3	3
Lang. (*French, German, Greek, Latin, Spanish*) (*One year*)	3	3
Eng. (*A second year of English*)	3	3
Group II. †A biological science (*Biol. 1, 2*) or a physical science (*Chem. 1, 2; ★Chem. 3, 4; Geol. 1, 2; or Phys. 1, 2*)	4	4
Group III. Econ. (*One year*)	3	3
Educ. (*One year*)	3	3
Govt. (*One year*)	3	3
Phil. (*One year*)	3	3
Psych. (*One year*)	3	3
Soc. (*One year*)	3	3
Electives to meet semester requirements		
	18	18

JUNIOR YEAR

Phys. Ed. 5, 6 (*For women*)	1	1
Major courses and electives to meet semester requirements		
	18	18

SENIOR YEAR

Major courses and electives to meet semester requirements		
	17	17

* A year's work in English is required but may be taken during the freshman, sophomore, junior or senior year. See special language and English requirements.

† Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

★ Chemistry 3, 4 is required for pre-medical students and recommended for all who intend to take advanced work in sciences.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGES 132–134

COLLEGE OF LIBERAL ARTS

PRESCRIBED CURRICULUMS

Several prescribed programs of study intended to provide training for business or professional life are available to students in the College of Liberal Arts. They are arranged in such manner as to permit considerable intense specialization while conserving the breadth and general culture of the students enrolled in them. They are less broad and general, however, than the General Liberal Arts curriculum. They are definitely vocational in character. All prescribed curriculums lead to the degree of bachelor of science.

Business Curriculum

The Business curriculum is designed to afford students an opportunity for training in basic business procedures and operations and at the same time to secure training in general cultural subjects. Business positions in retail stores (both independent and chain), banks, offices of public accountants, offices of manufacturing concerns, insurance organizations and other firms have been successfully filled for a number of years by graduates of this curriculum.

Women students interested chiefly in the secretarial phase of commercial life are referred to the Secretarial curriculum described on page 142.

The Business curriculum has been planned to emphasize foundation or cultural courses in the freshman and sophomore years, the specialized business courses being largely reserved for the junior and senior years with rather wide elective opportunities in the senior year. The program is outlined in detail on page 148. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146. Business students must obtain grades of 75 or better in 27 semester credits from the following courses: accounting 1, 2, 3, 4; economics 1, 2, 3, 4, 21, 22, 24, 53; English 35.

Students interested in business are advised to consult the supervisor, Professor A. W. Johnson, in his office in room 302, Morrill hall.

Hospital Dietetics Curriculum

Hospitals, clinics and various public and private health agencies employ dietitians to give advice on proper diets for the preservation of health or the treatment of disease, or to administer dietary departments in institutions caring for sick people. The American Dietetic association sets up certain standards for such curriculums, and the New Hampshire program is set up according to the association's specifications. See page 149.

In addition to the four-year program of work at the university, the student must successfully serve for one year as an intern in the dietary department of an approved hospital if she wishes membership in the American Dietetic association, or to obtain a position in an approved hospital. On occasion, smaller hospitals give graduates positions as assistant dietitians without the fifth year of hospital training, but stu-

dents interested in the hospital field are strongly urged to serve a year as interns if at all possible. The conditions under which this work may be taken vary with the hospital. Some of the best hospitals in this part of the country accept high-ranking New Hampshire graduates.

It is further recommended that students register for the course, home economics 48, *Field Work in Institutional Practice and Extension*, page 267, during the summer between the junior and senior years in order to test out their interest in and aptitude for hospital work before regsitering for the final work of the senior year.

Basic courses in both the physical and biological sciences are included in this program. General courses are not neglected, and there are some opportunities for electives. In addition, practical training and experience are given in the university dining hall where modern equipment and food service practices are actually demonstrated.

The Hospital Dietetics curriculum is essentially vocational. Students interested in broad, general programs with a mild emphasis on home economics are counselled to major in the field in the General Liberal Arts curriculum, and should consult page 124.

Students interested in teaching home economics in secondary schools or in colleges should consult the description of the Home Economics Teacher Preparation curriculum which appears on page 174.

Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146. Students interested in hospital dietetics are advised to consult the supervisor, Professor Helen F. McLaughlin, in her office in room 208, Pettee hall.

Hotel Administration Curriculum

Young men and women to whom a career in hotel work makes an appeal are invited to follow this four-year curriculum. Hotel work is no sinecure; hard labor and long hours are the inevitable condition of final success. The details, indeed, of the curriculum here offered will make these facts evident. But hotel work once entered upon has also proved fascinating to most of those who have engaged in it, and it affords a means of earning a living which is frequently lucrative.

To do well in hotel work requires on the part of the student real effort, and the eventual acquirement of wide knowledge in an extensive range of subject matter. On the other hand, there are many positions open to hotel graduates, and the hotel industry is an expanding one.

The four-year curriculum here offered is designed to give the student who takes it the well-rounded education demanded of the hotel executive, and is not confined strictly to vocational work. The program includes, besides the vocational subjects which are necessary, cultural courses in history, economics, English, and the sciences.

The basic work comprises four main divisions: foods, engineering, accounting, and specialized hotel work. About two-thirds of the total curriculum is prescribed by the requirements of the department in these four groups together with the university and college requirements, leav-

ing about one-third of the time open for electives in allied subjects or others of the student's choice.

In the freshman year students are required to select chemistry 1-2 as the science course to be taken. This work in chemistry is prerequisite to the courses in foods taken in later years. Freshmen are also required to take hotel administration 1, accounting 1-2, and mechanical engineering 1.

To make certain that the hotel educational program contains some experience under working conditions, each student is required to secure before graduation a minimum of twenty points of hotel practice credit in addition to the requirements for the Hotel Administration curriculum. This will be gained through work in hotels where supervision will be authorized, regular reports submitted by the student, and the grade of work reported by the employer. Each week of work will constitute one point. Not more than twelve points may be secured for any one type of work performed, nor more than twenty points from a given hotel.

The program is outlined in detail on pages 150, 151. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146.

Students interested in hotel administration are advised to consult the supervisor, Professor R. R. Starke, in his office in room 219, Murkland hall.

Institutional Administration Curriculum

Trained managers of the dietary and residence departments of various institutions are in great demand today. Students interested in preparing themselves to become food service directors in schools, colleges, tea rooms, and various private and public institutions are advised to register in the Institutional Administration curriculum and should consult the detailed requirements of the program which are set forth on page 152. The major emphasis of this program is in feeding groups of normally healthy people. Students who are interested in food problems of people in poor health who have to be treated in hospitals or clinics are advised to follow the Hospital Dietetics curriculum, which is described on page 137.

The Institutional Administration curriculum, which is administered by the department of home economics, provides a good foundation in the physical and biological sciences, some general education obtained through elective courses, and affords a limited opportunity of securing practical experience, through work and observation, in feeding large groups of people, accomplished under the supervision of trained dietitians in the university dining halls. The successful completion of this curriculum qualifies the student to be a dietitian in a small institution or an assistant dietitian in a larger one, from which latter position she may advance to the position of head dietitian.

The curriculum is essentially vocational. Students interested in broad, general programs with emphasis on home economics are counselled to major in the field of home economics in the General Liberal Arts curriculum and should consult page 124.

The courses in the program are based upon the physical, biological and social sciences. The technical work in foods, nutrition, and dietetics is based on the principles of chemistry and physiology. That in sanitation necessitates a knowledge of chemistry and bacteriology. Provision is also made in the curriculum for a student to earn college credit for successful summer field work in an approved institution. The field demands an intensive and thorough training, but the employment opportunities are extensive and varied enough to make it worth the effort and time of the average student.

Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146. Registration in home economics 1, 2, *Homemaking*, is required of every freshman entering this curriculum unless excused by the head of the department. Students interested in institutional administration are advised to consult the supervisor, Professor Helen F. McLaughlin, in her office in room 208, Pettee hall.

Nursing Curriculum

Any woman student interested in nursing as a career is encouraged to consider the nursing curriculum. It affords opportunity for examinations for registration as a nurse and enables the matriculant, also, to secure a college degree. The breadth of training beyond that usually received in a hospital training school is increasingly in demand particularly for those who aspire to executive or supervisory positions. The curriculum prepares for nursing and also permits the student some specialization in other fields related to nursing.

The student must satisfactorily complete three years of work in residence at the University of New Hampshire, and graduate from a school of nursing approved by the university. The length of the training period will vary with the several schools of nursing.

A student registered in the curriculum is held for the requirements expected of students in all prescribed curriculums which are set forth on page 146.

Students interested in selecting the nursing curriculum are advised to consult with the supervisor, Professor C. G. Dobrovolny, in his office in room 106A, Nesmith hall.

Occupational Therapy Curriculum

Occupational therapy as a profession is comparatively new although its value has been known and appreciated for many years. It was first used in this country in 1798, but it is only since the World War of 1914 that it has become a recognized profession.

The successful practice of occupational therapy requires not only thorough academic training, but suitable personality combined with judgment, dependability, tact, tolerance, patience, and kindness. A high degree of mental and physical health is essential. Occupational therapy requires physical vitality and nervous stability. The university

reserves the right to require a student to drop the course if she does not prove fitted for this work, or if her academic standing is unsatisfactory.

In accordance with the standards of training approved by the American Association of Occupational Therapists, all students must be at least twenty-one years of age at graduation. The maximum age is thirty-five, although exceptions are sometimes made in the cases of well-qualified persons.

The course of study as set up at the University of New Hampshire is designed to satisfy the requirements of the American Medical association as well as to offer a four-year college course leading to the B.S. degree, with an additional nine months of practical work in affiliated hospitals under the direction of a registered therapist. This intern training period is divided as follows:

Mental hospital—not less than two months
Tuberculosis sanatorium—not less than one month
Children's hospital—not less than one month
General hospital—not less than one month
Orthopedic hospital—not less than one month
Optional for the remaining three months

The American Medical association also requires a physical examination including a tuberculin test. Students, during their internship, are expected to wear a uniform similar to that of a nurse, including low-heeled white shoes and white stockings.

In addition to the regular college expenses, students in occupational therapy will be expected to pay for the materials used in craft work of which they retain possession. The sum involved varies somewhat, depending upon the projects chosen.

While the university does not guarantee a position, the bureau of appointments will notify registered students of openings. The profession is not overcrowded, and all indications point to an increase in this type of work in the next few years. Students satisfactorily completing the course are also eligible to take the United States civil service examinations for positions in either the United States public health hospitals, or those under the veterans administration.

Students interested in this curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146 of the current catalog. They are advised to consult with the supervisor, Professor Irma G. Bowen, at the Craft cottage.

**Pre-medical Curriculum*

Young men and women interested in careers as physicians or surgeons are counselled to select the Pre-medical curriculum. Matriculants are cautioned to consider whether their interests are in the practice of medi-

* A special condensed pre-medical program has been set up conforming to recommendations of the American Medical Association for the wartime training of physicians. Students deferred by draft boards because of pre-medical status are required to follow this curriculum. For particulars see Professor Jackson.

cine or surgery or whether they lie in the field of applied biology or nursing. Consideration of the opportunities open to majors in zoölogy in the General Liberal Arts curriculum as described on page 131 is recommended.

Students who successfully complete the Pre-medical curriculum will be eligible for admission to any class A medical school. Owing, however, to the crowded condition of most medical schools, only those students who stand in the upper third of their class during their pre-medical work may be admitted. Some medical schools restrict the number of students admitted from any one pre-medical institution. Preference is always given to those students who have the most complete training and who stand highest in their pre-medical work.

It is highly desirable that a student spend four years at the university in preparation for medical training, although some medical schools do not require a bachelor's degree as a condition of admission. The four years of pre-medical work will, however, give the student a good broad foundation for his future medical work.

The curriculum is outlined in detail on page 156. Students registered in it are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146.

Pre-dental Training.—Pre-dental training parallels very closely the Pre-medical curriculum and the student's program should include courses in comparative anatomy, physics, and organic chemistry.

Students interested in either of these curriculums should consult the supervisor, Professor C. F. Jackson, in his office in room 101, Nesmith hall.

Secretarial Curriculum

A large number of college women find pleasant and profitable employment in secretarial positions in private, professional, commercial and industrial offices. Although in most cases the initial appointment is to a subordinate position in an office organization, the breadth of the college training plus the clerical skills acquired during the college course give opportunity for early assumption of greater responsibility.

Although the curriculum is essentially vocational, it provides for a rather liberal number of elections with which to secure the general education so essential to success.

Women students interested in other aspects of business are advised to consider the Business curriculum described on page 137, and those interested in less specialization are counselled to consider a major in economics in the General Liberal Arts curriculum as set forth on pages 117, 118.

Women preparing to teach commercial subjects in high school should include in their freshman programs Sec. St. 7, 8; in their sophomore programs, Sec. St. 1, 2, economics 3, 4, accounting 1, 2, English (year's work), psychology 11, and education 42; in their junior programs, Sec. St. 3, 4, 9, 10, 13, and 17, economics 1, 2, and education 51, 52, and 61;

in the summer school between their junior and senior years education-commercial subjects 93, *Recent Problems in the Teaching of Commercial Subjects in the High School;* and in their senior programs, Sec. St. 11 and 18 and education-commercial subjects 94, *Supervised Teaching in Commercial Subjects.* Such students should enroll for an average of not less than 18 semester hours for seven semesters in order to earn the 140 credits required for the degree.

The secretarial curriculum is outlined in detail on page 157. Students registered in it are held for the requirements expected of students in all prescribed curriculums as set forth on that page. Secretarial majors must earn grades of 75 or better in the following courses: Sec. St. 3, 4, 9, 10, 17; Sec. St. 11, 13, 18 (unless excused in accordance with the statement below); Sec. St. 22, *Advanced transcription,* Sec. St. 23-24, *Business writing,* economics, or accounting (any economics or accounting course, whether listed in the curriculum or not, will be accepted), 7-14 credits, (a total of 27 semester credits).

Students transferring from collegiate institutions and high school students with previous training in secretarial subjects are required to take the following courses: Sec. St. 3, 4, 9, 10, 17; Sec. St. 11, 13, 18 (unless excused). These students may be excused from

Sec. St. 11 by passing a 40-period certificate test.

Sec. St. 13 by passing a theory and practice test on each of the machines taught.

Sec. St. 18 by giving satisfactory evidence of having done acceptable secretarial work in a business office for one year. Work done for relatives will not be considered.

Transfers and high school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial majors who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester of typewriting in high school or preparatory school, will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students interested are advised to consult with the supervisor, Professor Doris Tyrrell, in her office in room 4, Morrill hall.

Two-Year Secretarial Curriculum

The two-year secretarial curriculum offers high school graduates the opportunity to prepare for positions in which the demand is for mature workers who are equipped with certain technical skills; who have broadened their educational horizon through contact with the academic world; and who have had a degree of office experience.

An important feature of the two-year program is the plan by which

qualified students are able to earn a large part of their expenses and at the same time gain practical experience by working in university offices.

After satisfactorily completing 70 credits of prescribed and elected courses (two years of full-time studying) an appropriate certificate will be granted. Subsequently, a student may earn an additional 70 credits and receive the bachelor's degree.

High school graduates of the college preparatory course, the general course, or the commercial course will be admitted by the usual methods (see p. 75). Graduates of the high school commercial course who give evidence of ability in this field need not, however, meet all the subject-matter entrance requirements. In case a student is not sure that his record will be acceptable, a transcript of his high school grades should be sent to the Committee on Admissions. Students will be admitted under one of the following plans:

Plan A. Students admitted under this plan will work half time in campus offices, earning $35 a month, and study half time. Although three years will be required to complete the work for the certificate, the number of credits earned will represent two years of full-time study. Applicants should have taken two years of shorthand and typewriting (or one year of shorthand and typewriting and one year of office practice) in high school.

Continuance in this plan is contingent upon the student's doing satisfactory work both in class and in part-time employment.

Plan B. Students following this plan will work less than half time and may earn up to $20 a month. Although between two and three years will be required to complete the work for the certificate, the number of credits earned will represent two years of full-time study. Applicants should have taken at least one year of shorthand and typewriting in high school.

Continuance in this plan is contingent upon the student's doing satisfactory work both in class and in part-time employment.

Plan C. This plan will be followed by students who are not working part time and who will complete the requirements for the certificate in two years.

Candidates for a certificate in the two-year secretarial curriculum must complete 70 semester credits, 35 of which must be with a grade of 70 or better. Of these 35, 21 must be with a grade of 75 or better. Under Plans A and B the grade of 75 or better must be earned in the following courses:

Sec. St. 3-4, *Advanced Shorthand*, 6 cr.
Sec. St. 9-10, *Advanced Typewriting*, 4 cr.
Sec. St. 11, *Filing*, 2 cr. (unless excused from course in accordance with conditions described below)
Sec. St. 13, *Office Machines*, 2 cr. (unless excused from course in accordance with conditions described below)
Sec. St. 19-20, *Office Procedure*, 4 cr.

Accounting, Sec. St. 23-24, *Business Writing*, or Sec. St. 22, *Advanced Transcription*, 3-4 cr.
A social study, 3 cr. (if more than 4 credits are needed to complete 21)

Under Plan C, a grade of 75 or better must be earned in the following courses:

Sec. St. 3-4, *Advanced Shorthand*, 6 cr.
Sec. St. 9-10, *Advanced Typewriting*, 4 cr.
Sec. St. 11, *Filing*, 2 cr. (unless excused from course in accordance with conditions described below)
Sec. St. 13, *Office Machines*, 2 cr. (unless excused from course in accordance with conditions described below)
Sec. St. 17-18, *Office Procedure and Practice*, 6 cr. (unless excused from 18 in accordance with conditions described below)
Accounting, Sec. St. 23-24, *Business Writing*, or Sec. St. 22, *Advanced Transcription*, 3-5 cr.
A social study, 3 cr. (if more than 5 credits are needed to complete 21)

A grade of 75 in the courses listed is based on production tests and represents as nearly as possible the performance of the average stenographer or secretary in the skill in which the testing is done.

Students transferring from collegiate institutions and high school students with previous training in secretarial subjects are required to take the following courses: Sec. St. 3, 4, 9, 10, 17; Sec. St. 11, 13, 18 (unless excused or in Plan A or B). Students may be excused from:

Sec. St. 11, *Filing*, by passing a 40-period certificate test.
Sec. St. 13, *Office Machines*, by passing a theory and practice test on each of the machines taught.
Sec. St. 18, *Office Practice*, by giving satisfactory evidence of having done acceptable secretarial work in a business office for one year. Work done for relatives will not be considered.

Transfer students and high school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial majors who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester of typewriting in high school or preparatory school, will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students interested are advised to consult with the supervisor, Professor Doris Tyrrell, in her office in room 4, Morrill hall.

Social Service Curriculum

Social service includes, among others, the following fields: family case work, child care, child placement, settlement and neighborhood house, institutional work for defectives and dependents, municipal and county relief work, probation, correctional school and prison service, Y.M.C.A. and Y.W.C.A. secretarial service, municipal playground direction, child guidance clinics, community chest work, rural community organization.

Students may prepare for social work as a career under one of three plans. In every way the most desirable is to take the full four years at the university as a broad preparation for a two-year professional course in a recognized school of social work. If the resources necessary for such extended professional training are lacking, it is possible to acquire the fundamental principles and techniques of social service by selecting the Social Service curriculum. To meet the needs of students desiring supervised urban training, three years may be taken at the university, and the fourth at an approved school of social work. The requirement of the senior year in residence will be waived and the degree awarded by the university on the successful completion of the fourth year in such a school.

The student should not confuse the Social Service curriculum with the major in sociology in the General Liberal Arts curriculum. The Social Service curriculum is essentially vocational.

The program is outlined in detail on page 161. Students registered in it are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146.

It should be noted that while the field work requirement of sociology 97, 98 may be completed during the college year in connection with a neighboring social agency (see description on page 311), it is strongly recommended that, where possible, students arrange to satisfy the requirement by spending the summer preceding the senior year in practical work under the supervision of a settlement, correctional institution, or case work agency in Boston, Pittsburg, Cleveland, Chicago, or other urban center.

Students interested are advised to consult the supervisor, Professor C. W. Coulter, in his office in room 201, Morrill hall.

Requirements for Degrees—All Prescribed Curriculums

1. Inasmuch as all prescribed curriculums prepare for specific vocations, students selecting them are held for the successful completion of all the courses prescribed, and generally in the sequence in which they are arranged on pages 148–161.

2. A student registered in a prescribed curriculum must satisfy the general university and the special freshman requirements described under A and B of the General Liberal Arts curriculum on page 133. He must also complete successfully before graduation six semester credits of English, in addition to meeting the requirements of English 1. Not all English courses may be used to meet this requirement. See pages

245–250. Students registering in a prescribed curriculum are exempt from any foreign language requirement.

3. A student registered in a prescribed curriculum must complete 140 semester credits of which 70 must be with a grade of 70 or better. He must also pass at least 27 semester credits of the prescribed courses* with grades of 75 or better, and meet the quality requirements established for the curriculum in which he is registered.

4. A student registered in a prescribed curriculum must observe also the regulations governing all students of the College of Liberal Arts as set forth under F on page 134.

* Except in the secretarial curriculum. See page 143.

UNIVERSITY OF NEW HAMPSHIRE

BUSINESS CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 135		
Electives to make	17	17

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*Eng. (*A year of English*)	3	3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Electives to meet semester requirements		
	18	18

Junior Year

Acct. 3, 4 (*Intermediate Accounting*)	4	4
Econ. 1, 2 (*Principles of Economics*)	3	3
Econ. 21, 22 (*Commercial Law*)	3	3
Econ. 24 (*Marketing*)		3
Eng. (35) (*Public Speaking*)		3
Electives		
	18	18

Senior Year

Econ. 53 (*Money and Banking*)	3	
Electives to meet semester requirements		
	17	17

* A year of English must be taken before graduation.

Detailed description of this curriculum appears on page 137.

COLLEGE OF LIBERAL ARTS

HOSPITAL DIETETICS CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133. (*Include Biol. 1, 2*)		
Electives to make	17	17

Sophomore Year

Phys. Ed. 3, 4	1	1
Eng. (*A year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H. Ec. 15, 16 (*Foods*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Electives to meet semester requirements		
	18	18

Junior Year

Phys. Ed. 5, 6	1	1
Psych. 11 (*Principles of Human Behavior*)	3	
Agr. Chem. 5 (*Organic and Biological Chemistry*)	5	
Agr. Chem. 6 (*Chemistry of Food and Nutrition*)		3
H.Ec. 25, 26 (*Child Development*)	3	3
H.Ec. 74 (*Dietetics*)		3
Econ. 1, 2 (*Principles of Economics*) or Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
Elective:		
H.Ec. 48 (*Field Work in Institutional Practice or Extension*)		4–6
	18	18

Senior Year

Bact. 1 (*General Bacteriology*)	4	
Bact. 2 (*Applied Bacteriology*)		4
H.Ec. 49, 50 (*Quantity Cookery*)	2	2
H.Ec. 41 (*Institutional Management*)	3	
H.Ec. 43, 44 (*Institutional Practice*)	2	2
H.Ec. 46 (*Furniture and Textiles*)		3
H.Ec. 75 (*Diet Therapy*)	3	
Elective:		
Acct. 1 (*Elementary Accounting*)	4	
	17	17

Detailed description of this curriculum appears on page 137.

UNIVERSITY OF NEW HAMPSHIRE

HOTEL ADMINISTRATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133. (*Include Chem. 1-2*)		
†H.A. 1 (*Orientation*)	1	
Acct. 1, 2 (*Elementary Accounting*)	4	4
M.E. (1) (*Mechanical Drawing*)		2
H.A. 40 (*Lectures on Hotel Management*)		1
	17	17

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*Eng. (*A year of English*)	3	3
Acct. 9, 10 (*Hotel Accounting*)	3	3
H.E. 15, 16 (*Foods*)	3	3
Econ. 1, 2 (*Principles of Economics*)	3	3
H.A. 21, 22 (*Introductory Hotel Engineering*)	4	4
H.A. 42 (*Lectures on Hotel Management*)		1
Electives:		
H.A. 23 (*Stewarding*)	1	
Hort. 61 (*Harvesting and Marketing*)	3	
Hort. 28 (*Elementary Landscape Gardening*)		3
Ent. 54 (*Household Insects*)		2
	18	18

Junior Year

H.A. 5 (*Hotel Operation*)	3	
H.A. 44 (*Lectures on Hotel Management*)		1
Psych. 31 (*General Psychology*) or	3	
Psych. 33 (*Psychology for Students of Commerce*)	3	
Psych. 36 (*Psychology of Personnel*)		3
H.E. 49, 50 (*Quantity Cookery*)	2	2
E.E. 31 (*Circuits and Appliances*)	4	
M.E. 40 (*Heating and Ventilating*)		2
H.E. 46 (*Furniture and Textiles*)		3
Electives:		
See sophomore electives		
French 1, 2 (*Elementary French*)	4	4
Econ. 61 (*Public Regulation of Business*)	3	
Econ. 53, 54 (*Money and Banking*)	3	3
A.H. 8 (*Meat and Its Products; Livestock Markets*)		2
	18	18

* A year of English must be taken before graduation.

† Not to be included in the courses used to meet the requirement of 27 semester credits in prescribed courses with grades of 75 or better.

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Econ. 21, 22 (*Commercial Law*)	3	3
H.A. 46 (*Lectures on Hotel Management*)		1
Electives:		
H.A. 6 (*Hotel Public Relations*)		2
H.A. 12 (*Financial Statements*)		2
H.E. 41 (*Institutional Management*)	3	
Soc. 88 (*Recreation and Leisure*)		3
Acct. 5, 6 (*Advanced Accounting*)	4	4
Sec. St. 7, 8 (*Typewriting*)	2	2
Sec. St. 1, 2 (*Shorthand*)	3	3
	17	17

In addition to the requirements listed above, each student is required to secure before graduation a minimum of twenty points of hotel practice credit.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 138.

UNIVERSITY OF NEW HAMPSHIRE

INSTITUTIONAL ADMINISTRATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133. (*Include Biol. 1, 2.*)		
H.Ec. 1, 2 (*Homemaking*)	3	3
	17	17

Sophomore Year

Phys. Ed. 3, 4	1	1
*Eng. (*A year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H.Ec. 3, 4 (*Clothing Selection*)	3	3
H.Ec. 15, 16 (*Foods*)	3	3
Electives:		
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psych. Prin. of Secondary Education*)		3
	18	18

Junior Year

Phys. Ed. 5, 6	1	1
Agr. Chem. 5 (*Organic and Biological Chemistry*)	5	
Agr. Chem. 6 (*Chemistry of Food and Nutrition*)		3
H.Ec. 74 (*Dietetics*)		3
Econ. 1, 2 (*Principles of Economics*) or Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
Electives:		
†H.Ec. 48 (*Field Work in Institutional Practice*)		4–6
H.Ec. 46 (*Furniture and Textiles*)		3
	18	18

Senior Year

H.Ec. 49, 50 (*Quantity Cookery*)	2	2
H.Ec. 41 (*Institutional Management*)	3	
H.Ec. 43, 44 (*Institutional Practice*)	2	2
H.Ec. 75 (*Diet Therapy*)	3	
Electives:		
Bact. 1, 2 (*Gen. Bact.; Applied Bact.*)	4	4
Acct. 1 (*Elementary Accounting*)	4	
	17	17

* A year of English must be taken before graduation.

† Field work may be done during the summer.

Detailed description of this curriculum appears on page 139.

COLLEGE OF LIBERAL ARTS

NURSING CURRICULUM

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 133. (*Include Biol. 1, 2.*)			
Chem. 3–4 (*General Chemistry*)	4		4
	17		17

Sophomore Year

Phys. Ed. 3, 4	1		1
Eng. (*A year of English*)	3		3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3		3
Elect courses from the following to make up a normal semester load:			
Bact. 1, 2 (*General and Applied Bacteriology*)	4		4
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3		3
Psych. 31 (*General Psychology*)	3	or	3
H.E. 15-16 (*Foods*)	3		3
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3
	18		18

Junior Year

Phys. Ed. 5, 6	1		1
Zoöl. 53 (*Histology*)	4		
Agr. Chem. 5 (*Organic and Biological Chemistry*)	5		
Elect courses from the following to make up a normal semester load:			
Agr. Chem. 6 (*Chemistry of Food and Nutrition*)			3
Zoöl. 54 (*Embryology*)			4
Zoöl. 59-60 (*Advanced Physiology*)	3		3
Econ. 1-2 (*Principles of Economics*)	3		3
Educ. 42 (*Psychological Principles of Secondary Educ.*)			3
Psych. 51 (*Psychology of Childhood*)	3		
Psych. 81 (*Mental Hygiene*)			3
H.E. 25-26 (*Child Development*)	3		3
Soc. 72 (*The Family*)			3
Soc. 73 (*Principles of Social Case Work*)	3		
	18		18

Training Period

Credit earned in training at an approved hospital will apply towards a bachelor's degree.

Detailed description of this curriculum appears on page 140.

UNIVERSITY OF NEW HAMPSHIRE

OCCUPATIONAL THERAPY CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133. (*Include Biol. 1, 2.*)		
Soc. 1 (*Principles of Sociology*)	3	
Soc. 2 (*Social Psychology*)		3
Arts 23, 24 (*Elementary Drawing and Design*)	2	2
Hort. 40 (*Outdoor Floriculture*)		3
Arts 11, 12 (*Modeling*)	1	1
	17	19

Sophomore Year

* Phys. Ed. 3, 4 (*For women*)	1	1
Eng. (*A second year's work in English*)	3	3
Psychology 11 (*Principles of Human Behavior*)	3	
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
H.E. 5, 6 (*Clothing Construction*)	2	2
Psych. 81 (*Mental Hygiene*)		3
M.E. (S4) (*Wood work*)		2
Arts 1 (*Handicrafts*)	2	
Arts 29 (*Advanced Painting*)	2	
† Elective		
	17	17

Junior Year

* Phys. Ed. (*For women*)	1	1
Soc. 62 (*Community Organization*)		3
Psych. 54 (*Psychopathology*)		3
Zoöl. 3 (*Hygiene and Sanitation*)	3	
Arts 39 (*Elementary Photography*)	3	
H.E. 33-34 (*Home Management*)	3	3
Arts 4 (*Handicrafts*)		3
Arts 13, 14 (*Carving*)	1	1
Arts 15, 16 (*Ceramics*)	2	2
Arts 35 (*Stagecraft*)	1	
† Elective		
	18	18

* The following activities in physical education are recommended as being particularly helpful in the practice of occupational therapy and students registered in this curriculum are advised to choose as many as possible from this list:

Folk dancing	Dramatic dancing
Tap dancing	Fencing
American folk dancing	Archery
Community games	Bowling

† See page 155, note.

SENIOR YEAR

Soc. 71 (*Crime and Its Social Treatment*)	3	
Arts 47, 48 (*Theory of Occupational Therapy*)	2	2
Arts 49, 50 (*Clinical Subjects*)	2	2
H.E. 25, 26 (*Child Development*)	3	3
Arts 45 (*Elementary Library Methods*)	1	
Arts 19, 20 (*Puppetry*)	2	2
Arts 5, 6 (*Handicrafts*)	3	3
† Elective		
	17	17

† Electives: The following courses are recommended by therapists in service as valuable electives:

Sec. St. 5 (5) (*Personal Use Typewriting*)	1	1
Arts 31, 32 (*Introduction to the Arts*)	3	3
Music 13, 14 (*Appreciation of Music*)	2	2
Eng. 35, (35) (*Public Speaking*)	3	3

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 140.

UNIVERSITY OF NEW HAMPSHIRE

PRE-MEDICAL CURRICULUM *

Freshman Year

	First Semester Credits	Second Semester Credits
See freshman requirements, page 133. (*Include Biol. 1, 2.*)		
Chem. 3–4 (*General Chemistry*)	4	4
	17	17

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*A year of English*)	3	3
Chem. 25, 26 (*Introductory Quantitative and Qualitative Analysis*)	3	3
Zoöl. 15, 16 (*Comparative Anatomy of the Vertebrates*)	4	4
Elective:		
Lang. (*French or German*)	3	3
	18	18

Junior Year

Phys. 5, 6 (*Pre-Medical Physics*)	5	5
Chem. 53, 54 (*Organic Chemistry*)	5	5
Electives:		
Bacteriology	4	4
Advanced Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	18	18

Senior Year

Advanced Zoölogy	4	4
Electives:		
Advanced Bacteriology	4	4
Physiological Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	17	17

* A special condensed pre-medical program has been set up for students deferred by draft boards because of pre-medical status. See Professor Jackson.

Detailed description of this curriculum appears on page 142.

COLLEGE OF LIBERAL ARTS

SECRETARIAL CURRICULUM *

Freshman Year

	First Semester Credits	Second Semester Credits
See freshman requirements, page 133.		
Electives to meet semester requirements		
	17	17

Sophomore Year

Phys. Ed. 3, 4	1	1
Eng. (*A year of English*)	3	3
Sec. St. 1, 2 (*Shorthand*)	3	3
Sec. St. 7, 8 (*Typewriting*)	2	2
Sec. St. 23, 24 (*Business Writing*)	3	3
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Suggested electives to meet semester requirements: Education, Language, Statistics, Sociology		
	18	18

Junior Year

Phys. Ed. 5, 6	1	1
† Sec. St. 3, 4 (*Advanced Shorthand*)	3	3
† Sec. St. 9, 10 (*Advanced Typewriting*)	2	2
Econ. 1, 2 (*Principles of Economics*)	3	3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Electives to meet semester requirements		
	18	18

Senior Year

Sec. St. 22 (*Advanced Transcription*) (*Not required*)		3
Sec. St. 17, 18 (*Secretarial Office Procedure and Practice*)	3	3
Sec. St. 11 (*Filing*)	2	
Sec. St. 13 (*Office Machines*)		2
Electives to meet semester requirements		
	17	17

* Students preparing to teach secretarial subjects must elect in addition a sufficient number of courses in economics, accounting, and education to meet state requirements.

† A grade of 70 or better in Sec. St. 8 will be required of students electing Sec. St. 9 and 10; and a grade of 70 or better in Sec. St. 2 will be required of students electing Sec. St. 3 and 4.

Detailed description of this curriculum appears on page 142.

UNIVERSITY OF NEW HAMPSHIRE

TWO-YEAR SECRETARIAL CURRICULUM*

PLAN A

(WORK HALF TIME AND STUDY HALF TIME)

	First Semester Credits	*Second Semester Credits*
Sec. St. 3, 4 (*Advanced Shorthand*)	3	3
Sec. St. 9, 10 (*Advanced Typewriting*)	2	2
Sec. St. 19, 20 (*Office Procedure*)	2	2
Phys. Ed.	2	2
	12	12

	Third Semester Credits	*Fourth Semester Credits*
Acct. 1, 2 (*Elementary Accounting*)	4	4
Sec. St. 11 (*Filing*)	2	
Sec. St. 13 (*Office Machines*)		2
Sec. St. 23, 24 (*Business Writing*)	3	3
Phys. Ed.	1	1
Electives		
	12	12

	Fifth Semester Credits	*Sixth Semester Credits*
A social study	3	3
Sec. St. 22 (*Advanced Transcription*) (*Not required*)		3
Phys. Ed.	1	1
Electives		
	11	11

* It is assumed that the entering student has had enough shorthand and typewriting in high school to enroll in the advanced courses. Modifications in the program will be made to fit individual cases.

COLLEGE OF LIBERAL ARTS

TWO-YEAR SECRETARIAL CURRICULUM *

PLAN B

(WORK LESS THAN HALF TIME)

	First Semester Credits	*Second Semester Credits*
Sec. St. 3, 4 (*Advanced Shorthand*)	3	3
Sec. St. 9, 10 (*Advanced Typewriting*)	2	2
Sec. St. 19, 20 (*Office Procedure*)	2	2
Phys. Ed.	2	2
Electives		
	14	14

	Third Semester Credits	*Fourth Semester Credits*
Acct. 1, 2 (*Elementary Accounting*)	4	4
Sec. St. 23, 24 (*Business Writing*)	3	3
Sec. St. 22 (*Advanced Transcription*) (*Not required*)		3
Social Study	3	3
Phys. Ed.	1	1
Electives		
	14	14

	Fifth Semester Credits
Sec. St. 11 (*Filing*)	2
Sec. St. 13 (*Office Machines*)	2
Phys. Ed.	1
Electives	
	14

* It is assumed that the entering student has had enough shorthand and typewriting in high school to enroll in the advanced courses. Modifications in the program will be made to fit individual cases.

UNIVERSITY OF NEW HAMPSHIRE

TWO-YEAR SECRETARIAL CURRICULUM *

PLAN C

(STUDY FULL TIME)

	First Semester Credits	*Second Semester Credits*
Sec. St. 1, 2 (*Beginning Shorthand*)	3	3
Sec. St. 7, 8 (*Beginning Typewriting*)	2	2
Acct. 1, 2 (*Elementary Accounting*)	4	4
Social Study	3	3
Phys. Ed.	2	2
	17	17

	Third Semester Credits	*Fourth Semester Credits*
Sec. St. 3, 4 (*Advanced Shorthand*)	3	3
Sec. St. 9, 10 (*Advanced Typewriting*)	2	2
Sec. St. 11 (*Filing*)	2	
Sec. St. 13 (*Office Machines*)		2
Sec. St. 17, 18 (*Office Procedure and Practice*)	3	3
Sec. St. 23, 24 (*Business Writing*)	3	3
Electives	4	4
Phys. Ed.	1	1
	18	18

* It is assumed that the entering student has had no commercial work in high school Modifications in the program will be made to fit individual cases.

COLLEGE OF LIBERAL ARTS

SOCIAL SERVICE CURRICULUM

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 133. (*Include Biol. 1, 2.*)			
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3
	17		17

Sophomore Year

Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For Men*)	½		½
Phys. Ed. 3, 4 (*For Women*)	1		1
Eng. (*A year of English*)	3		3
Psych. 31, (31) (*General Psychology*)	3	or	3
Soc. 61 (*Social Pathology*)	3		
Soc. 62 (*Community Organization*)			3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3		3
Electives:			
H.E. 25, 26 (*Child Development*)	3		3
Hist. 7, 8 (*The United States from 1790 to 1900*)	3		3
Sec. St. 7, 8	2		2
	18		18

Junior Year

Phys. Ed. 5, 6 (*For Women*)	1		1
Soc. 71 (*Crime and Its Social Treatment*)	3		
Soc. 72 (*The Family*)			3
Soc. 75 (*Methods of Social Research*)	3		
Soc. 73 (*Principles of Social Case Work*)	3		
Psych. 54 (*Psychopathology*) or 81 (*Mental Hygiene*)			3
Electives:			
Econ. 1, 2 (*Principles of Economics*)	3		3
Govt. 3, 4 (*American Government*)	3		3
	18		18

Senior Year

Soc. 95, 96 (*Sociological Research*)	3		3
Soc. 97, 98 (*Social Service and Field Work*)	3		3
Soc. 88 (*Recreation and Leisure*)			3
Soc. 84 (*Methods of Social Progress*)			3
Electives:			
Eng. 35 (35) (*Public Speaking*)	3	or	3
Eng. 41 (41) (*Expository Writing*)	3	or	3
Zoöl. 5, 6 (*Organic Evolution*)	3		3
	17		17

Detailed description of this curriculum appears on page 146.

UNIVERSITY OF NEW HAMPSHIRE

PREPARATION FOR TEACHING

University Teacher Preparation Curriculums

The University of New Hampshire has accepted the responsibility of preparing teachers for the secondary schools of New Hampshire and neighboring states. Two types of teacher preparation programs are offered. General Liberal Arts curriculum students may follow the advisory program of studies entitled the University Teacher Preparation Program. Then there are prescribed curriculums preparing teachers in the fields of agriculture, art, home economics, music, and physical education. On pages 162 through 169 appear descriptions of these programs of study. Students interested in preparing for teaching are urged to become thoroughly familiar with the requirements of all of the teacher preparation programs before they make a choice of a particular program. This section of the catalog includes descriptions of teacher preparation programs offered by the university, not merely those offered by departments in the College of Liberal Arts.

The University Teacher Preparation Program*

The university teacher preparation program presented on page 170 of this catalog includes the basic courses which it is believed are needed in the preparation of secondary-school teachers. These courses are designed to give thorough preparation in subject-matter fields in which the individual desires to teach. The courses in education aim to develop an appreciative understanding of adolescents and their educational needs, of our democratic society and its needs which our secondary schools should endeavor to meet, of the objectives and techniques of secondary-school teaching, and of the problems of teaching peculiar to the subject-matter fields in which the student intends to teach. The program also includes a semester of supervised teaching designed to give prospective teachers opportunity to teach under supervision and under as nearly normal conditions as can be arranged.

It is important to note that the university teacher preparation program may be completed not only by students majoring in the department of education, but also by students majoring in any of the departments of the university offering work the subject-matter of which is offered in secondary schools. General Liberal Arts curriculum students registered in and completing this program are released from the sophomore group requirements of the General Liberal Arts curriculum (see p. 133). All other requirements of the general liberal arts curriculum, including the language requirement, must be met. Students satisfactorily completing this program are entitled to the degree awarded to students majoring in their respective subjects and also to a certificate indicating that the university teacher preparation program has been completed.

This program is sufficiently flexible to provide the differentiation necessary to meet the needs of students who may be planning to teach: (1) English and the foreign languages, (2) English and the social studies,

* This is *not* a prescribed curriculum.

(3) mathematics and the biological or physical sciences, or (4) the commercial subjects. Students who are planning to teach the commercial subjects take their teaching major and minors in the field of economics and commerce. Such students should include in their programs the following courses: secretarial studies 7–8, in the freshman year; secretarial studies 1–2, economics 3, 4, and accounting 1–2, in the sophomore year; secretarial studies 3–4, 9–10, 13, and 17, and economics 1–2, in the junior year; secretarial studies 11 and 18, commercial subjects-education 93 and education-commercial subjects 94, in the senior year.

Students who plan to complete the university teacher preparation program in the teaching of history or social studies should elect European history (history 19, 20) in their sophomore year.

Since the State of New Hampshire requires each candidate for certification to be prepared to teach three subjects which are referred to as "teaching major" and first and second "teaching minors,"* the university teacher preparation program includes the requirement of the satisfactory completion of 24 semester credits in a teaching major and of 12 semester credits in each of two teaching minors. This work may include any courses in the respective subject-matter fields taken in college. The student before registering for supervised teaching must complete with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.

Courses in Problems in the Teaching of High School Subjects. The courses in problems in the teaching of high school subjects are listed on pages 235, 236 and are open only to students who have completed the course in principles and problems of teaching in the secondary schools (education 61) in addition to the courses in the subject and related subjects designated as prerequisites. From these courses in problems in the teaching of high school subjects the student planning to complete the university teacher preparation curriculum selects his courses in the fields of his teaching major and teaching minor. To be eligible for supervised teaching in a subject the student must complete the course in the problems of teaching that subject with a grade of at least 75.

Courses in Supervised Teaching. The work in supervised teaching is under the direction of the professor and assistant professor of education serving as director and assistant director of student teaching. Students teach under the general direction of the members of the university faculty conducting the courses in problems of teaching the various school subjects. Students teach under the immediate direction of selected classroom teachers in high schools approved by the university.

In the supervised teaching courses the student participates in the conduct of class exercises and in the control of the classroom, at first chiefly as an observer, but gradually entering into teacher responsibilities until complete charge of the classroom is assumed.

* The requirements of the State of New Hampshire are a teaching major of 18 semester credits, a first teaching minor of 12 semester credits, and a second teaching minor of 6 semester credits. For detailed information concerning teaching majors and minors, consult the department of education.

This work is required in the university teacher preparation program, but will be open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the department of education on or before November 15 of the academic year in which the supervised teaching is to be done. *No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in education: 42, 51, 52, 61 and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.*

The applicant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

Prescribed Curriculums in Teacher Preparation

The University Teacher Preparation Curriculum in Agriculture. The university teacher preparation curriculum in agriculture gives the young man a broad training in the fundamental sciences and in general agriculture. In addition, he receives professional training in such educational subjects as psychology, principles of education, methods of teaching, and supervised student teaching. Students who complete the curriculum and have had the requisite amount of practical experience on a farm will be accredited as teachers.

There is a rapidly increasing demand for teachers of agriculture in our secondary schools. Local school boards are beginning to appreciate more fully the value of instruction in agriculture, both for the boys who will engage in agriculture after leaving high school, and as electives to maintain the interest of those young men who may wish to take at the university further education in this basic industry. As a result, there are a good many positions open for the young men who wish to make the teaching of agriculture a profession.

The first two years of the teacher preparation curriculum in agriculture are identical with the first two years of other curriculums in agriculture. For the prescribed program for the freshman and sophomore years, see page 102 of this catalog. For the specialized program of the junior and senior years, see pages 171, 172.

Art Education Curriculum. This curriculum is designed to prepare teachers and supervisors of art in the public schools. It offers a carefully balanced specialization in teaching methods, materials, and techniques, and conforms to the regulations set down by the New Hampshire state board of education for teachers and supervisors of art, drawing, and design (other than mechanical drawing).

Freshmen who plan to enter this curriculum should elect *Elementary Drawing and Design* (arts 23, 24) in their first year program.

Students who wish to prepare themselves to teach other subjects in addition to art can do so by using their elective hours for this purpose.

Such a program should be worked out in consultation with Professor A. M. Stowe, of the department of education.

Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146 of the current catalog.

Interested students should consult the supervisor of this curriculum, Professor George R. Thomas, room 304, DeMeritt hall.

Home Economics Teacher Preparation Curriculum. The Home Economics Teacher Preparation curriculum for secondary school teaching and extension work, presented on page 174, aims to give adequate preparation to prospective teachers in the subject-matter of the several phases of the field of home economics; to acquaint them with educational procedures and modern methods of teaching, as well as to give a general education. The program is professional in character.

The teacher preparation curriculum provides for courses in general as well as special methods. Students spend the first part of the second semester of the senior year in supervised teaching in approved high schools. The last three to four weeks of the semester are spent on the campus in an intensive seminar where deficiencies revealed during the practice teaching period may be translated into assets. Graduate study is necessary for students who plan to be teachers of home economics in colleges and universities.

Women students interested in entering extension work, either as home demonstration agents or as boys' and girls' club agents in the 4-H Club program, are advised to follow the teacher preparation program. An opportunity is offered to such students to obtain some practical experience in extension work through home economics 48, *Field Work in Institutional Practice and Extension*, during the summer between the junior and senior years. A limited number of opportunities to do practice extension work during the latter part of the senior year is available to women students who have shown special aptitude in previous field experience in extension work.

The curriculum is outlined in detail on page 174. Students registered in it are held for the requirements expected of students in all prescribed curriculums, which are set forth on page 146. Registration in home economics 1, 2, *Homemaking*, is required of every freshman in the Home Economics Teacher Preparation curriculum unless excused by the head of the department.

Students who are interested should consult the supervisor, Professor Helen F. McLaughlin, room 208, Pettee hall.

Music Education Curriculum. This curriculum is designed to prepare teachers and supervisors of music in the public schools. It is based on the new demands for teachers possessing sound musicianship and a broad general culture in addition to a specialized training in music education. The satisfactory completion of this curriculum will satisfy the requirements for teachers and supervisors of music in the public schools in New Hampshire and in most other states.

To be admitted to this curriculum the student must give evidence of having a sound musical background. *Freshmen who plan to enter this curriculum should take music 11, 12 and one course in applied music in their first year program.*

Teachers and supervisors of music education must maintain a satisfactory standing with other professional musicians of the community and should be able to play or sing acceptably. For this reason 16 semester hours in applied music are required before graduation: 12 semester hours in one subject and 2 semester hours in two other subjects. In addition all candidates must pass an examination in piano.

Students who wish to prepare themselves to teach other subjects in addition to music can do so by using their elective hours for this purpose. Such a program should be worked out in consultation with Professor A. M. Stowe, of the department of education.

The Music Education curriculum is outlined in detail on page 175. Students registered in the curriculum are held for the requirements expected of students in all prescribed curriculums which are set forth on page 146.

Interested students should consult the supervisor of this curriculum, Professor B. W. Bergethon, room 101, Ballard hall.

The University Physical Education Teacher Preparation Curriculum for Men. For men students who plan to prepare themselves for positions as teachers of physical education or directors of physical education, the university has organized the university physical education teacher preparation curriculum for men (see p. 176). This curriculum is a modification of the university teacher preparation program, which will enable men to prepare themselves to teach in two subject-matter fields as well as in physical education. It is open to men who have satisfactorily completed the freshman year, and are approved by the department of physical education for admission to physical education as a field of concentration. Freshmen who desire to select physical education should elect biology 1, 2 as their freshman science course. The satisfactory completion of this curriculum will entitle the student, in addition to his diploma, to a certificate indicating the fact. All students enrolled in this curriculum are required to register for physical education 31, 32, 33, 34 and must in their freshman and sophomore years pass skill tests in at least four of the individual and two of the team activities offered in the required two year program.

Sophomores who have been approved for concentration in physical education should enroll in the section of zoölogy 17, 18, provided for this group, as this course is basic to most of the courses in physical education required in the university physical education teacher preparation curriculum. They should also enroll in physical education 23, *Principles of Physical Education*, and in zoölogy 4, *Hygiene and Sanitation.*

Junior physical education students should include in their programs

physical education 61, *Problems of Teaching in Physical Education*, and education (61), *Principles of Teaching in Secondary Schools*.

Senior physical education students should include in their programs physical education 65, *Administration of Physical Education in Secondary Schools*, and education-physical education 93, (93), *Directed Teaching in Physical Education*.

Physical education students who are candidates for the university physical education teacher preparation certificate must satisfactorily complete the work of two of five of the problems of coaching courses (physical education 40, 45, 46, 47, 48) in their junior and senior years. Students who wish to elect physical education 63, *Care and Prevention of Athletic Injuries*, should complete this requirement in the junior year.

Where it is possible, student teachers, who are physical education students, will be given an opportunity to do supervised teaching in physical education in the field and will be enrolled for education-physical education 94.

Candidates for the certificate are required to complete satisfactorily a teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN. For women students who plan to prepare themselves for positions as teachers of physical education, the university has organized the university physical education teacher preparation curriculum for women (see page 177). This curriculum is a modification of the university teacher training program which will enable women to prepare themselves to teach in two subject matter fields as well as in physical education. It is open to women who have satisfactorily completed the freshman year and are approved by the department of physical education for admission to that field of concentration. Freshmen who desire to become physical education students should elect biology 1, 2 as their freshman science course.

Sophomores who have been approved for concentration in physical education should enroll in zoölogy 17, 18, *Human Anatomy and Physiology*, as this course is basic to most of the courses in physical education required in the university physical education teacher preparation curriculum. They should also enroll in physical education 13, 14 and in physical education 23, *Principles of Physical Education*.

Junior physical education students should include in their programs physical education 63, 64, *Theory and Coaching of Sports*, and physical education 66, *Administration of Physical Education in the Secondary Schools*.

In the senior year, physical education students should enroll in physical education 91, *Problems in the Teaching of Physical Education for Women*, and physical education 65, *Remedial Gymnastics*. Where it is possible, student teachers who are physical education students will be given an opportunity to do supervised teaching in physical education in the field. They may be enrolled in education 94, supervised teaching

in the teaching major or majors, during the second semester of the senior year. An alternative program for the second semester has been arranged whereby students who remain on the campus may elect physical education 92, *Directed Teaching*. This course provides an opportunity to teach physical education under supervision in nearby elementary and secondary schools.

Physical education students are required to complete satisfactorily a teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools.

Electives offered by the department of physical education for women are: physical education 24, *Organized Camping*, physical education 36, *Recreation Leadership*, and a group of individual and dual sports which do not appear in the required curriculum.

In addition, the following courses offered by other departments are suggested as valuable electives for physical education students: English 35, *Public Speaking;* English 40, *Stage Direction;* psychology 51, 81, *Psychology of Childhood and Mental Hygiene;* music 11, 12, *Elements of Music;* sociology 1, 2, *Principles and Social Psychology;* sociology 57, 60, *Rural and Urban Sociology;* sociology 62, *Community Organization;* zoölogy 3, 4, *Hygiene and Sanitation.* Physical education students are advised to choose non-professional electives in the junior year.

Under physical education 3, 4, 13, 14, 5, 6, physical education students are required to include the following division of activities: one quarter each of the following: individual gymnastics, tennis, archery, community games, soccer, hockey, basketball, and informals; two quarters of folk dancing.

Other activities in the physical education program may be taken under electives (see page 298).

Students following any teacher training curriculum in the university are urged to elect for physical education the above activities.

For information concerning this curriculum, see Professor Margaret R. Hoban, 101A, New Hampshire Hall.

Guidance of Students Preparing to Teach. Students who come to the University of New Hampshire for the purpose of preparing themselves for the teaching profession should consult with the head of the department of education early in their freshman year. Other students who are seriously considering teaching as a possible vocation are urged to consult with the head of the department of education before making a decision.

While the university has organized curriculums designed to prepare students for the profession of teaching, it also recognizes that it is important that students be prepared to meet the state teacher certification requirements of the states in which they may desire to teach. The department of education endeavors to keep its files of teacher certification requirements up to date. Students preparing to teach in states other than New Hampshire should, before the close of their sophomore year, consult the department of education concerning the requirements of the

states in which they desire to teach and the most effective ways of meeting those requirements.*

* The New Hampshire State board of education grants a license to teach in New Hampshire secondary schools to candidates whose courses have included twelve semester hours of college work in education. All candidates must pass the examination set by the State board in Program of Studies and School Law. They may offer in lieu of examinations certified college courses in educational psychology, methods of teaching (general or special) and secondary education or school management.

The following courses may be considered as work in education: educational sociology, educational psychology, practice teaching, methods of teaching, history of education, school law, school management, general methods course, special methods course, and work in tests and measurements.

UNIVERSITY OF NEW HAMPSHIRE

UNIVERSITY TEACHER PREPARATION PROGRAM *

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 133.			
†Teaching major (*First year*)			
	18		18

Sophomore Year ‡

Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For men*)	½		½
Phys. Ed. 3, 4 (*For women*)	1		1
Eng. (*A year of English*)	3		3
§Psych. 11 (*Principles of Human Behavior*) and Educ. 42 (*Psychological Principles of Secondary Education*)	3		3
Teaching major (*Second year*)	3		3
First teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	18		18

Junior Year

Phys. Ed. 5, 6 (*For women*)	1		1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3		3
Educ. 61, (61) (*Principles and Problems of Teaching in the Secondary School*)	3	or	3
Teaching major (*Third year*)	3		3
First teaching minor (*Second year*)	3		3
Second teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	19		19

Senior Year

‖ Teaching major (*Fourth year*)	3		
# First teaching minor (*Third year*)	3		
# Second teaching minor (*Second year*)	3		
Problems in teaching (*Major*)	3		
Problems in teaching (*Minor*)	3		
Supervised teaching			6–14
Electives to meet semester requirements			
	18		6–14**

* This is not a prescribed curriculum. This program may be completed by students majoring in any of the departments of the university offering work, the subject matter of which is offered in the secondary school. Students must, consequently, fulfill major requirements. A satisfactory completion of this program will entitle the student to a certificate indicating the fact.

† See sections covering department of education (pages 118–119; 163) for description of teaching major and teaching minor subjects.

‡ General liberal arts students satisfactorily completing this program are released from the sophomore group requirements of the general curriculum and are entitled to either the A.B. or B.S. degree, whichever is conferred for the subject in which the student is majoring.

§ Or Educ. 11.

‖ Remainder of the total of 24 semester credits required for the satisfactory completion of the program.

Remainder of the total of 12 semester credits required in each teaching minor.

** The student should take enough credits in student teaching to reach the 140 needed for graduation. He may not, however, take less than six credits.

Detailed description of this curriculum appears on page 162.

UNIVERSITY TEACHER PREPARATION CURRICULUM IN AGRICULTURE*

Junior Year

	First Semester Credits	Second Semester Credits
Agr. Econ. 13 (*Records*)	2	
Agr. Econ. 15 (*Marketing and Coöperation*)	3	
Agron. 14 (*Crop Production*)		3
A.H. 13 (*Feeds*)	3	
D.H. 64 (*Milk Production*)		3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Ag. Ed. 92 (*Problems in Teaching of High School Agriculture*)		3
M.E. (S23) (*Farm Shop*)	2	
Elective	5	6
	18	18

Recommended Electives

Agron. 13 (*Crop Production*)	3	
Agron. 15 (*Soil Utilization*)	3	
Bact. 1, 2 (*General and Applied*)	4	4
D.H. 27, 30 (*Butter and Cheese; Bacteriology*)	2	4
D.H. 33 (*Dairy Cattle Judging*)	1	
Hort. 14 (*Elementary Vegetable Gardening*)		3
Hort. 28 (*Elementary Landscape Gardening*)		3
Hort. 61 (*Harvesting and Marketing*)	3	
P.H. 18 (*Incubation and Brooding*)		3
P.H. 21 (*Poultry for Teachers*)	2	
P.H. 23 (*Management*)	3	
Soc. 57 (*Rural Sociology*)	3	
Zoölogy 49 (*Genetics*)	2	

* See page 102 for the freshman and sophomore years.

It is suggested that each student consult with his adviser for assistance in developing his program to insure the proper selection of courses, and to secure a well balanced program which will meet the state standards for teaching.

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Agr. Econ. 14 (*Farm Management*)		3
Agr. Eng. 16 (*Farm Shop*)		2
D.H. 34 (*Judging*)		1
Educ.-Agr. 93 (*Supervised Teaching in High School Agriculture*)	14	
Educ. (45) (*New Hampshire State Program of Studies and School Law*)		2
Elective		10
	14	18

Recommended Electives

Agr. Eng. 12 (*Farm Power and Machinery*)		2
Agr. Eng. 14 (*Agricultural Drawing*)		1
A.H. 18 (*Meat and Its Products*)		2
A.H. 20 (*Sheep and Swine*)		3
English (35) (*Public Speaking*)		3
Geology (7) (*General*)		3
Hort. 44 (*Horticultural Practice*)		5
P.H. 24 (*Poultry Practice*)		4
Soc. 62 (*Community Organization*)		3
See junior electives		

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 164.

COLLEGE OF LIBERAL ARTS

ART EDUCATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133.		
Arts 23, 24 (*Elementary Drawing and Design*)	3	3
Electives		
	18	18

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*Men*)	½	½
Phys. Ed. 3, 4 (*Women*)	1	1
Eng. (*A year of English*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Arts 31, 32 (*Introduction to the Arts*)	3	3
Arts 15, 16 (*Ceramics*)	2	2
Arts 25, 26 (*Advanced Drawing and Design*)	2	2
Elective		
	18	18

Junior Year

Phys. Ed. 5, 6 (*Women*)	1	1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3	3
Arts 27, 28 (*Water Color Painting*)	3	3
Arts 35, (35) (*Stagecraft*)	½–1	½–1
Electives		
	19	19

Senior Year

Arts 3 (*Handicrafts*)	3	
Arts 29 (*Advanced Painting, Water Color or Oil*)	3	
* Art-Ed. 91 (*Problems of Teaching Art in Elem. Schools*)	3	
* Art-Ed. 92 (*Problems of Teaching Art in Secondary Schools*)	3	
Ed-Art 94 (*Supervised Teaching*)		6–14
Electives:		
† Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
‡ Educ. 61 (*Prin. and Problems of Teaching in the Sec. School*)	3	
	18	6–14 §

* May be taken in summer session between junior and senior years.

† For students planning to teach in the State of New Hampshire.

‡ For those students who plan to teach in art and some other area.

§ The student should take enough credits in student teaching to reach the 140 needed for graduation. He may not, however, take less than 6 credits.

UNIVERSITY OF NEW HAMPSHIRE

HOME ECONOMICS TEACHER PREPARATION CURRICULUM

(For Teaching in High Schools and for Extension Work)

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133.		
H.Ec. 1, 2 (*Homemaking*)	3	3
	18	18

Sophomore Year

Phys. Ed. 3, 4	1	1
*Eng. (*A year of English*)	3	3
Chem. 1, 2 (*General Chemistry*)	4	4
H.Ec. 3, 4 (*Clothing Selection*)	3	3
H.Ec. 15, 16 (*Foods*)	3	3
Psych. 11 (*Prin. of Human Behavior*)	3	
Educ. 42 (*Psych. Prin. of Secondary Education*)		3
Electives		
	18	18

Junior Year

Phys. Ed. 5, 6	1	1
H.Ec. 74 (*Dietetics*)		3
Educ. 51, 52 (*Soc. Prin. of Secondary Education*)	3	3
Arch. 13 (*Home Building*)	3	
H.Ec. 32 (*Home Furnishing*)		3
H.Ec. 5, 6 (*Clothing Construction*)	2	2
H.Ec. 25, 26 (*Child Development*)	3	3
Suggested Electives		
Agr. Eco. 8 (*The Rural Community*)		
Agr. Chem. 5, 6 (*Organic and Biol. Chemistry; Chemistry of Food and Nutrition*)		
H.E. 98 (*Prin. and Tech. of Demonstrations*)		
	18	18

Senior Year

H.Ec. 33 (*Home Management*)	3	
H.Ec. 35 (*Home Management House*)	3	
Educ. 61 (*Prin. and Problems of Teaching in the Secondary School*)	3	
H.Ec.-Ed. 91 (*Problems in the Teaching of High School Home Economics*)	3	
H.Ec.-Ed. 94 (*Supervised Teaching*)		6—11
H.Ec.-Ed. 96 (*Seminar*)		3
Elective:		
† Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Electives to meet semester requirements		
	19	9–14‡

† Required of students planning to teach in New Hampshire.

‡ The student should take enough credits in student teaching to reach the 140 needed for graduation. He should not, however, take less than 6 credits.

Detailed description of this curriculum appears on page 165.

COLLEGE OF LIBERAL ARTS

MUSIC EDUCATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 133.		
Music 11, 12 (*Elements of Music*)	3	3
Applied Music (*Piano, Violin or Voice*)	1–3	1–3
	18	18

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*For Men*)	½	½
Phys. Ed. 3, 4 (*For Women*)	1	1
Eng. (*A Year of English*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Music 21, 22 (*Harmony and Beginning Counterpoint*)	3	3
Music 37, 38 (*Music History and Literature*)	3	3
Applied Music (*Piano, Voice or Violin*)	3	3
Musical Organizations	1	1
	18	18

Junior Year

Phys. Ed. 5, 6 (*For Women*)	1	1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3	3
Music 47, 48 (*Music History and Literature*)	3	3
Mu-Ed. 91 (*Problems in the Teaching of Elementary School Music*)	3	
Mu-Ed. 92 (*Problems in the Teaching of Secondary School Music*)		3
Mu-Ed. 97 (*The Teaching of Brass and Percussion Instruments*)	2	
Mu-Ed. 96 (*The Teaching of Woodwind Instruments*)		2
Applied Music (*Piano, Voice or Violin*)	2	2
Musical Organizations	1	1
Electives		
	18	18

Senior Year

Music 53, 54 (*Orchestration and Conducting*)	3	3
Mu-Ed. 95 (*The Teaching of Stringed Instruments*)	2	
Ed-Mu. 93 (*Supervised Teaching of Elementary School Music*)	3–6	
Ed-Mu. 94 (*Supervised Teaching of Secondary School Music*)		3–6
Applied Music (*Piano, Voice or Violin*)	1	1
Musical Organizations	1	1
Electives:		
* Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
	16	16

* For students planning to teach in the State of New Hampshire.

Detailed description of this Curriculum Appears on page 165.

UNIVERSITY OF NEW HAMPSHIRE

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshmen requirements, page 133. (*Include Biol. 1, 2.*)		
Basic course in teaching major (*First year*)		
	—	—
	18	18

Sophomore Year

Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*A year of English*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Teaching major (*Second year*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Phys. Ed. 23 (*Principles of Physical Education*)	3	
Zoöl. 4 (*Hygiene and Sanitation*)		3
	—	—
	19	19

Junior Year

Educ. 51, 52 (*Social Principles of Secondary Education*)	3	3
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Phys. Ed. 61 (*Problems of Teaching in Physical Education*)	3	
Educ. (61) (*Principles and Problems of Teaching in Secondary Schools*)		3
†Problems of coaching (*P.E. 45, 47 or 48*)	2	
†Problems of coaching (*P.E. 40, 46*)		2
Teaching major	3	3
Elective (*First teaching minor*)	3	3
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)		3
Electives		
	—	—
	19	19

Senior Year

Teaching major	3	
Phys. Ed. 65 (*Administration of Physical Education in Secondary Schools*)	3	
†Problems of coaching (*P.E. 45, 47 or 48*)	2	
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)	3	
Problems in teaching (*Teaching major*) i.e., Eng-Ed. 91, etc.	3	
Supervised teaching in major or majors, *i.e., Ed-Eng. 94, etc.*		6–14
Elective:		
Phys. Ed. 63 (*Care and Prevention of Athletic Injuries*)	2	
	—	—
	18	6–14§

* For students planning to teach in the State of New Hampshire.

† Two problems of coaching courses are required.

‡ This course is required and may be elected either in the second semester of the junior or senior year or the first semester of the senior year.

§ The student should take enough credits in student teaching to reach the 140 needed for graduation. He should not, however, take less than 6 credits.

Detailed description of this curriculum appears on page 166.

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshmen requirements, page 133. (*Include Biol. 1, 2.*)		
Basic course in second teaching major (*First year*)		
Suggested Elective:		
Phys. Ed. 11, 12		
	18	18

Sophomore Year

Phys. Ed. 3, 4	1	1
Phys. Ed. 13, 14	1	1
Eng. (*A year of English*)	3	3
Psych. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Second teaching major (*Second year*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Phys. Ed. 23 (*Principles of Physical Education*)	3	
Suggested Elective:		
First teaching minor, or Phys. Ed. 24		
	18	18

Junior Year

Phys. Ed. 5, 6	1	1
Educ. 51, 52 (*Social Prin., etc.*)	3	3
Phys. Ed. 63, 64 (*The Theory, etc.*)	3	3
Second teaching major	3	
Educ. (61) (*Prin. and Problems, etc.*)		3
Teaching minor	3	
Phys. Ed. 66 (*Admin. of Phys. Ed., etc.*)		3
First teaching minor	3	3
Elective		
	19	19

Senior Year

Phys. Ed. 7	1	
Second teaching major	3	
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Phys. Ed. 91 (*Problems in the Teaching of Physical Education for Women*)	4	
Problems in teaching (second teaching major—e.g., Eng.-Ed. 91, etc.)	3	
Phys. Ed. 55 (*Remedial Gymnastics*)	3	
Supervised teaching in major or majors—e.g., Ed.-Eng. 94, etc.		6–14
	18	6–14†
Alternate Second Semester:		
Phys. Ed. 92 (*Directed Teaching of Phys. Ed. for Women*)		2
Phys. Ed. 36 (*Recreation Leadership*)		3
Phys. Ed. 24 (*Organized Camping*)		3
Teaching minor (*If not taken second semester of sophomore year*)		3
		12

* For students planning to teach in the State of New Hampshire.

† The student should take enough credits in student teaching to reach the 140 needed for graduation. He should not, however, take less than 6 credits.

Detailed description of this curriculum appears on page 167.

COLLEGE OF TECHNOLOGY

GEORGE W. CASE, *Dean**
LEON W. HITCHCOCK, *Acting Dean*

DEPARTMENTS

ARCHITECTURE
CHEMISTRY AND CHEMICAL ENGINEERING
CIVIL ENGINEERING
ELECTRICAL ENGINEERING
MATHEMATICS
MECHANICAL ENGINEERING
PHYSICS

ENGINEERING EXPERIMENT STATION

REQUIREMENTS FOR DEGREES

Baccalaureate Degrees.—Each candidate for a degree must complete 140 semester credits including the courses required in one of the four-year curriculums.

Professional Degrees.—Mechanical, electrical, and civil engineering graduates of the University of New Hampshire are eligible to register as candidates for professional degrees in these three branches of engineering.

These degrees will be granted, after the preparation and submission of acceptable theses, to those having not less than four years' satisfactory professional experience subsequent to the bachelor's degree, in which the applicants have wholly or in part supervised, directed or designed engineering work; or have been in responsible charge of instruction or research in engineering. The acceptability of the theses and professional experience is determined by an examining committee.

PROCEDURE.—The procedure for candidates for professional engineering degrees is as follows:

(1) Prepare an outline for a thesis after consultation with the head of the department concerned. This consultation may be by letter.

(2) When the thesis subject is accepted by the head of the department in which the degree is to be taken, the candidate will be registered in the registrar's office. This registration must be completed by October 1 of the academic year in which the degree is to be conferred.

(3) The first draft of the thesis must be submitted to the professor in charge not later than March 1, and the completed thesis in its final form by May 1.

(4) Pass an oral examination at the university covering the candidate's professional practice and the engineering principles underlying the thesis.

(5) Pay the commencement fee of $5.00 at the business office not later

* On leave of absence.

than 12 noon of the Saturday next preceding the date when the degree is conferred.

THESIS.—The thesis must be typewritten upon standard paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with title, name of author, degree sought, and year of graduation. The title page should bear the following statement:

"A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the professional degree of mechanical engineer (electrical engineer, civil engineer)."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a professional engineering thesis by the University of New Hampshire.

Two bound copies must be filed before commencement day, one with the librarian and one with the head of the department in which the major work is done.

CURRICULUMS

The College of Technology offers the following four-year curriculums:

ARCHITECTURE CURRICULUM.—The freshman and sophomore years of this curriculum have been replaced by the new curriculums in Architectural Engineering, and in Building Construction and Marketing for students who entered the university after the college year 1941–1942. For freshman and sophomore requirements and description of this curriculum, see Catalog Issue for 1942–1943, pages 166 and 169.

ARCHITECTURAL ENGINEERING CURRICULUM.—This curriculum is planned to prepare the student for efficient service as a draftsman or designer in an architectural or industrial organization and to provide him with a broad cultural background as a foundation for future independent practice. The diversified demands upon the professional architect make it advisable for the student to extend his formal education and to acquire experience in the practical fields of building construction. To this end, the curriculum is made sufficiently flexible to afford opportunities for preparation in such allied fields as architectural and engineering drafting, building contracting, construction superintendence, and industrial design as related to building products.

The work of the freshman year is common to that of the other engineering curriculums, and the student's election of this curriculum takes place at the beginning of the sophomore year.

The following three years aim to provide fundamental instruction and discipline in the art, science, theory, and history of architecture with equal stress being given to the structural and aesthetic qualities of building construction and design. In the fourth year the work is closely correlated to harmonize with those procedures common to an architect's office practice, including working drawings and specifications, contract forms, accounting and bookkeeping.

BUILDING CONSTRUCTION AND MARKETING CURRICULUM.—This curriculum is designed for a young man who wishes to make building in any

of its branches his chosen life work. It aims to provide sound basic training in the design, construction, and marketing of structures and facilities required for housing or shelter, and develop in the student a conception of the related problems of the architect, engineer, builder, and materials manufacturer and distributor in the process of planning and erecting buildings, to the end that he may eventually become a principal or a responsible manager in any of the many varied fields of this great industry.

Following the fundamental scientific and mathematical training of the first year, which is common to all the engineering curricula, the student who has chosen this program will continue through his second year with a carefully selected series of studies in the fundamentals of design and economics. Thus the work of the second year will direct him in his selection of one of the two options offered in the third year which definitely recognize the two broad fields of design and marketing. The design option prepares the student for efficient service as a draftsman or designer in an architectural, a contracting, or a building materials organization, while the marketing option points toward a career in the building industry marketing field as salesman, sales manager, merchant, merchandiser or distribution engineer.

This curriculum has been so organized that no matter what field of endeavor most appeals to the student at first, a re-evaluation of his aptitude for specialization may take place at any time, and he be permitted to choose within his option that objective best suited to his needs and abilities. In the third and fourth years a liberal allowance is made for an election of courses covering the many varied aspects of the legal, social, and economic phases of shelter.

Chemistry and Chemical Engineering Curriculums. These curriculums are intended to prepare the student for the career of a professional chemist or chemical engineer and to give a good foundation for further study in graduate schools leading to original and independent research.

Instruction is imparted by lectures, recitations and carefully supervised laboratory work. The laboratory study is largely individual, and the work of each student is conducted with reference not only to the particular subject he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a training in either German or French to enable him to read with ease the chemical literature, and a grounding in mathematics and physics necessary for advanced theoretical chemistry or chemical engineering. In the chemistry option further courses in pure science and an independent research project are offered, whereas the option in chemical engineering offers a limited amount of special work in mechanics, electrical engineering and thermodynamics and thorough courses in undergraduate chemical engineering subjects. The student in both options is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference library and chemical periodicals.

Civil Engineering Curriculum.—This curriculum is designed to give the student theoretical and practical instruction in the principles upon which the practice of civil engineering is based, and to allow him the opportunity to apply these principles to problems of professional practice in the classroom, in the design room and in the field.

Civil engineering, the oldest of the engineering professions, covers a broad field of activity, including topographical, structural, transportation, hydraulic and sanitary engineering. This curriculum places about equal emphasis upon each of these various branches and allows the student some opportunity to develop his special interests through the thesis requirement.

Electrical Engineering Curriculum.—The electrical engineering curriculum is intended to meet the demands of young men fitting themselves for professional engineering in connection with the various applications of electricity.

Courses are presented by lectures, recitations and laboratory practice in such a manner as to make the material of immediate service to the graduate, as well as prepare him to understand the constantly increasing number of new problems that will be brought to him for solution.

Mechanical Engineering Curriculum.—The mechanical engineering curriculum is intended to prepare young men for positions in the field of the mechanical industries. The courses in the curriculum include mathematics, physics and chemistry, drawing, shop work, machine design, electrical engineering, power engineering and also courses in economics and English. Throughout the curriculum the theoretical work is supplemented by practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, electrical, chemical and physical laboratories.

Alumni Representation.—An advisory committee of alumni of the College of Technology, composed of men in direct contact with industry and practical professional affairs, serves to keep the faculty in touch with developments in the several fields which attract our graduates. Members of this committee also serve as consultants when important changes in curriculums, faculty personnel and policies of administration are considered. The members are:

Henry H. Calderwood, B.S. in E.E., '01, 20 Prospect Street, Saugus, Mass.

John T. Croghan, B.S. in M.E., '08, 574 Chestnut Street, Waban, Mass.

Robert A. Neal, B.S. in E.E., '10, 316 Burlington Road, Wilkinsburg, Pa.

Lester A. Pratt, Ph.D., '09, 7 Everett Avenue, Winchester, Mass.

UNIVERSITY OF NEW HAMPSHIRE

ARCHITECTURE

See "Architecture Curriculum," page 179.

	First Semester Credits	*Second Semester Credits*
Junior Year		
Mil. Sci. 13, 14, or approved elective	3	3
*E.E. 31 (*Circuits and Appliances*) *or* Eng. 35 (*Public Speaking*)	3	
*M.E. 40 (*Heating and Ventilating*) *or* Phys. 54 (*Acoustics*)		2 or 3
Arch. 5, 6 (*History of European Architecture*)	2	2
Arch. 19, 20 (*Building Construction*)	3	3
Arch. 29, 30 (*Architectural Design*)	6	6
Arts. 27, 28 (*Water Color Painting*)	3	3
	20	19 or 20
Senior Year		
Mil. Sci. 15, 16, or approved elective	3	3
Eng. (41) (*Expository Writing*)		2
*E.E. 31 (*Circuits and Appliances*) *or* Eng. 35 (*Public Speaking*)	3	
*M.E. 40 (*Heating and Ventilating*) *or* Phys. 54 (*Acoustics*)		2 or 3
C.E. 7 Surveying	2	
Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Appraising*)		2
Arch. 21 (*Architectural Seminar*)	1	
Arch. 31, 32 (*Architectural Design and Thesis*)	6	6
Elective		3
	19	18 or 19

* E.E. 31 and M.E. 40 required of juniors and seniors in alternate years beginning in 1943–44. Physics 54 and Eng. 35 required of juniors and seniors in 1944–45.

COLLEGE OF TECHNOLOGY

ARCHITECTURAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Phys. Ed. 31–32	½	½
Mil. Sci. 9–10	1½	1½
* Eng. 45–46 (*English for Engineers*)	3	3
Chem. 3–4 (*General Chemistry*)	4	4
Math. 5–6 (*First Year Mathematics*)	5	5
M.E. 1–2 (*Engineering Drawing*)	2	2
M.E. S1, S2, S3 (*Elementary Shop Practice*)	2	2
	18	18

Sophomore Year

Phys. Ed. 33–34	½	½
Mil. Sci. 11–12	1½	1½
Arch. (2) (*Elements of Architecture*)	2	
Arch. 9 (*Principles of Architectural Design*)	2	
Arch. (24) (*Shades, Shadows, Perspective*)	2	
Arch. 26 (*Architectural Design*)		2
Arts 24 (*Elementary Drawing and Design*)		2
Math. 17–18 (*Calculus*)	3	3
Phys. 7–8 (*General Physics*)	3	3
Phys. 9–10 (*Physics Laboratory*)	3	3
	17	15

Junior Year

Arch. 5–6 (*History of European Architecture*)	2	2
Arch. 27–28 (*Architectural Design*)	3	3
Arts 27–28 (*Water Color Painting*)	2	2
C.E. 15 (*Engineering Materials*)	3	
C.E. 27–28 (*Theory of Structures*)	4	4
M.E. 9–10 (*Mechanics*)	3	4
Mil. Sci. 13–14 (*Coast Art. or approved electives*)	3	3
	20	18

Senior Year

Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Supervision*)		2
Arch. 17–18 (*Plumbing, Heating and Electric Equipment*)	3	3
Arch. 29–30 (*Architectural Design*)	4	4
C.E. 65 (*Structural Design*)	4	
C.E. 66 (*Reinforced Concrete Structures*)		4
Mil. Sci. 15–16 (*Coast Art. or approved electives*)	3	3
	18	16

* A student must meet the requirements of Eng. 1 also. See page 244.

ARCHITECTURAL ENGINEERING

Approved Electives

	First Semester Credits		*Second Semester Credits*
Arch. 4 (*Significance of Architecture*)			2
Arch. 14 (*Domestic Architecture*)			2
Arts 23 (*Elementary Drawing and Design*)	2		
Arts 27–28 (*Water Color Painting*)	3		3
Arts 31–32 (*Introduction to the Arts*)	3		3
C.E. 2 (*Surveying*)			3
C.E. 62 (*Foundations*)			3
Econ. 1–2 (*Principles of Economics*)	3		3
Eng. 35 (35) (*Public Speaking*)	3		3
Eng. 41 (41) (*Expository Writing*)	3		3
Geol. 7 or (7) (*General Geology*)	3	or	3
Govt. 61 (*Community Planning*)	3		
Hort. 28 (*Elementary Landscape Gardening*)			3
Phys. 54 (*Acoustics*)			3

COLLEGE OF TECHNOLOGY

BUILDING CONSTRUCTION AND MARKETING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 (*First Year Mathematics*)	5	5
Chem. 3, 4 (*General Chemistry*)	4	4
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1, S2, S3 (*Elementary Shop Practice*)	2	2
*Eng. 45, 46 (*English for Engineers*)	3	3
	18	18

The following subjects may, with the approval of the Dean of the College of Technology, be substituted for Math. 5–6, Chemistry 3–4:

Math. 21, 22 (*General Mathematics*)	5	5
Chem. 1, 2 (*General Chemistry*) or	4	4
Geol. 1, 2 (*Principles of Geology*)	4	4

Sophomore Year

Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Arch. (2) (*Elements of Architecture*)	2	
Arch. 26 (*Architectural Design*)		2
Arch. 4 (*Significance of Architecture*)		2
Arch. (24) (*Shades, Shadows, Perspective*)	2	
Arts 23, 24 (*Elementary Drawing and Design*)	2	2
Phys. 1, 2 (*Introduction to Physics*)	4	4
Econ. 1, 2 (*Principles of Economics*)	3	3
Acc. 1, 2 (*Elementary Accounting*)	4	4
	19	19

Design Option

Junior Year

Arch. 5, 6 (*History of European Architecture*)	2	2
Arch. 9 (*Principles of Architectural Design*)	2	
Arch. 14 (*Domestic Architecture*)		2
Arch. 19, 20 (*Building Construction*)	3	3
Arch. 27, 28 (*Architectural Design*)	3	3
Arts 25–26 (*Advanced Drawing and Design*)	2	2
M.E. 11, 12 (*Mechanics*)	3	3
Mil. Sci. 15, 16 or approved electives	3	3
	18	18

Senior Year

Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Supervision*)		2
Arch. 29, 30 (*Architectural Design*)	4	4
Arch. (35) (*Working Drawings*)		2
Arts 27–28 (*Water Color Painting*)	3	3
Mil. Sci. 15, 16 or approved electives	4	4
	15	15

* A student must meet the requirements of Eng. 1 also. See page 244.

Marketing Option

Junior Year

	First Semester Credits	*Second Semester Credits*
Arch. 9 (*Principles of Architectural Design*)	2	
Arch. 14 (*Domestic Architecture*)		2
Arch. 19, 20 (*Building Construction*)	3	3
Econ. 55 (*Corporations*)	3	
Econ. 56 (*Corporation Finance*)		3
Acc. 3, 4 (*Intermediate Accounting*)	4	4
Mil. Sci. 14, 15 and/or approved electives	5	5
	17	17

Senior Year

Acc. 7, 8 (*Cost Accounting*)	4	4
Econ. 24 (*Marketing*)		3
Agr. Eng. 15 (*Farm Buildings and Equipment*)	2	
Math. 34 (*Mathematics of Finance*)		3
Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Supervision*)		2
Arch. 35 (*Working Drawings*)	2	
Mil. Sci. 15, 16 and/or approved electives	4	4
	16	16

Approved Electives

Arch. 17, 18 (*Plumbing, Heating and Electrical Equip.*)	3	3
Arts 31, 32 (*Introduction to the Arts*)	3	3
C.E. 2 (*Surveying*)		3
C.E. 15 (*Engineering Materials*)	3	
C.E. 27, 28 (*Theory of Structures*)	4	4
Econ. 21, 22 (*Commercial Law*)	3	3
Econ. 53 (*Money and Banking*)	3	
Eng. 35 (35) (*Public Speaking*)	3	3
Eng. 37, 38 (*Forum Discussion and Debate*)	3	3
Eng. 41 (41) (*Expository Writing*)	2	2
For. 25, 26 (*Tree and Wood Identification*)	3	3
Geol. 1, 2 (*Principles of Geology*)	4	4
Geol. 7 (7) (*General Geology*)	3	3
Gov. 1, 2 (*Citizenship*)	3	3
Gov. 61 (61) (*Community Planning*)	3	3
H. Ec. 31, 32 (*Home Building and Furnishing*)	3	3
H. Ec. 9, 10 (*Handicrafts*)	1–3	1–3
H. Ec. 11, 12 (*Pottery*)	3	3
H. Ec. 33, 34 (*Home Management*)	3	3
Hort. 28 (*Elementary Landscape Gardening*)		3
M.E. S4 (*Wood Work*)		2
M.E. (S13) (*Forge Shop*)		2
M.E. (S17) (*Machine Shop*)		2
Phil. 71 (*Art of Thinking — Logic*)	3	
Phil. 83, 84 (*Evolution of Social Values and Ethical Judgments*)	3	3
Phys. 15, 16 (*Survey of Physical Science*)	3	3
Phys. 54 (*Acoustics*)		3
Poult. 22 (*Poultry Housing*)		2
Psy. 33 (*Psychology for Students of Commerce*)	3	
Psy. 34 (*Psychology of Advertising*)		3
Psy. 36 (*Psychology of Personnel*)		3
Socio. 57 (*Rural Sociology*)	3	
Socio. 60 (*Urban Sociology*)		3
Socio. 66 (*Organization of Town and Country Life*)		3

COLLEGE OF TECHNOLOGY

TECHNOLOGY CURRICULUM IN CHEMISTRY AND CHEMICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
*Eng. 45, 46 (*English for Engineers*)	3	3
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 6 (*General; Inorganic*)	4	6
M.E. 1 (*Engineering Drawing*)	2	
M.E. S1, S2 or S3 (*Elementary Shop Practice*)	2	
Geol. (7) (*General Geology*)		2
	18	18

Sophomore Year

Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Chem. 21 (*Semi-micro Qualitative Analysis*)	4	
Chem. 22 (*Quantitative Analysis*)		5
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	3	3
Phys. 9, 10 (*Physics Laboratory*)	3	3
Ger. 1, 2 or 5, 6 (*German*) *or approved elective*	3	3
	18	19

Junior Year

Chemistry Option

Chem. 47, 48 (*Organic*)	5	5
Chem. 31 (*Stoichiometry and Tech. Quantitative Analysis*)	5	
Chem. 62 (*Advanced Quantitative Analysis*)		4
Chem. 83, 84 (*Physical Chemistry*)	5	5
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective* (*Non-Physical Science*)	3	3
	18	17

Chemical Engineering Option

Chem. 47, 48 (*Organic Chemistry*)	5	5
Chem. 31 (*Stoichiometry and Technical Quantitative Analysis*)	5	
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 74 (*Unit Operations*)		3
Chem. 83, 84 (*Physical Chemistry*)	5	5
Mil. Sci. 13, 14 (*Coast Artillery*), M.E. 9, 10 (*Mechanics*) *or approved elective*	3	3
	20	18

* A student must meet the requirements of Eng. 1 also. See page 244.

Senior Year

Chemistry Option

	First Semester Credits	*Second Semester Credits*
Chem. 51, 56 (*Organic Chemistry*)	3	3
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 85, 86 (*Physical Chemistry*)	3	3
Chem. 87, 88 (*Chemical Literature and Seminar*)	1	1
Chem. 89, 90 (*Thesis*)	4	4
Mil. Sci. 15, 16 (*Coast Artillery*) or Elective (*Non-Physical Science*)	3	3
	16	16

Chemical Engineering Option

Chem. 75 (*Unit Operations*)	3	
Chem. 76 (*Chemical Engineering Economics*)		3
Chem. 77 (*Unit Operations Laboratory*)	3	
Chem. 78 (*Chemical Plant Design*)		3
Chem. 79 (*Chemical Engineering Thermodynamics*) or Mil. Sci. 15 (*Coast Artillery*)	3	
Chem. 80 (*Chemical Engineering Project*)		5
E.E. 33 (*Fundamentals of Electricity*)	4	
Chem. 87, 88 (*Chemical Literature and Seminar*)	1	1
Mil. Sci. 16 (*Coast Artillery*) or Elective		3
	14	15

COLLEGE OF TECHNOLOGY

CIVIL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 4 (*General Chemistry*)	4	4
*Eng. 45, 46 (*English for Engineers*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1, S2 or S3 (*Elementary Shop Practice*)	2	
C.E. 2 (*Surveying*)		2
	18	18

Sophomore Year

Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
C.E. 3, 4 (*Surveying*)	6	3
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	3	3
Phys. 9, 10 (*Physics Laboratory*)	3	3
C.E. 6 (*Route Surveying*)		3
	17	17

Junior Year

C.E. 15 (*Engineering Materials*)	3	
C.E. 52 (*Hydraulics*)		4
C.E. 27, 28 (*Theory of Structures*)	4	4
C.E. 41, 42 (*A.S.C.E.*) (*Required*)		
Geol. 7 (*General Geology*)	2	
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 21 (*Heat Power Engineering*)	3	
E.E. 36 (*Practical Electricity*)		4
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	19	18

Senior Year

C.E. 61 (*Highway Engineering and Transportation*)	4	
C.E. 62 (*Foundation Engineering*)		3
C.E. 63, 64 (*Hydraulic and Sanitary Engineering*)	4	4
C.E. 65 (*Structural Design*)	4	
C.E. 66 (*Reinforced Concrete Structures*)		4
C.E. 38 (*Thesis*)		2
C.E. 43, 44 (*A.S.C.E.*) (*Required*)		
Eng. 41 (*Expository Writing*)	2	
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	
	17	16

*A student must meet the requirements of Eng. 1 also. See page 244.

UNIVERSITY OF NEW HAMPSHIRE

ELECTRICAL AND MECHANICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Freshman Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 or 15, 16 (*First Year Mathematics*)	5	5
Chem. 3, 4 (*General Chemistry*)	4	4
*Eng. 45, 46 (*English for Engineers*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1, S2, S3 (*Elementary Shop Practice*)	2	2
	18	18

* A student must meet the requirements of Eng. 1 also. See page 244.

COLLEGE OF TECHNOLOGY

ELECTRICAL ENGINEERING

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	3	3
Phys. 9, 10 (*General Physics Laboratory*)	3	3
E.E. 1, 2 (*Electrical Engineering*)	2	4
M.E. 3 (*Machine Drawing*)	2	
M.E. 4 (*Kinematics*)		3
C.E. 9 (*Surveying*)	2	
	17	18

Junior Year

E.E. 13, 14 (*Electrical Problems*)	2	3
E.E. 15, 16 (*A.I.E.E.*) (*Required*)		
E.E. 23, 24 (*Electrical Laboratory*)	2	2
E.E. 53, 54 (*Electrical Engineering*)	3	3
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 25, 26 (*Heat Power Engineering*)	3	4
M.E. 27 (*Mechanical Laboratory*)	2	
Math. 51, 52, 58 (*Differential Equations and Vector Analysis*) or Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	19

Senior Year

*E.E. 7, 58 (*Electronics and Communications*)	3	4
E.E. 12 (*Illumination*)		2
E.E. 17, 18 (*A.I.E.E.*) (*Required*)		
*E.E. 19, 20 (*Thesis*)	3	3
E.E. 25 (*Electrical Laboratory*)	4	
E.E. 55 (*Electrical Engineering*)	3	
*E.E. 60 (*Advanced Circuit Theory*)		4
*E.E. 76 (*Electrical Laboratory*)		4
*E.E. 78 (*Advanced Electrons Laboratory*)		4
Phys. 51 (*Theory of Electrons*)	2	
Phys. 64 (*Electrical Measurements*)		3
C.E. 23 (*Hydraulics*)	3	
Eng. (41) (*Expository Writing*)		2
*M.E. 65 (*Industrial Management*)	3	
*M.E. 66 (*Engineering Economy*)		3
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	3
Approved non-technical elective (*optional*)		3
	18	14

* E.E. 58, 19, 20, 60, 76, 78, M.E. 65, 66, are elective courses.

MECHANICAL ENGINEERING

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 17, 18 or 18, 51 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	3	3
Phys. 9, 10 (*General Physics Laboratory*)	3	3
M.E. 3 (*Machine Drawing*)	2	
M.E. 4 (*Kinematics*)		3
M.E. 5, 6 (*Mechanical Laboratory*)	1	1
M.E. S17 (*Machine Shop*)	2	
C.E. (9) (*Surveying*)		2
	16	17

Junior Year

M.E. 59, 60 (*A.S.M.E.*)		
E.E. 37, 38 (*Electrical Machinery*)	4	4
M.E. 7, 8 (*Mechanics*)	4	4
M.E. 23, 24 (*Thermodynamics*)	3	3
M.E. 29, 30 (*Mechanical Laboratory*)	2	1
M.E. 13 (*Elementary Metallurgy*)	2	
C.E. 24 (*Hydraulics*)		3
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

M.E. 61, 62 (*A.S.M.E.*)		
M.E. 17 (*Heat Treatment Laboratory*)	1	
M.E. 15, 16 (*Machine Design*)	3	3
M.E. 39 (*Heating and Ventilating*)	2	
M.E. 52 (*Mechanical Laboratory*)		2
M.E. 53, 54 (*Power Plants*)	2	3
M.E. 55, 56 or 37, 38 (*Automotive Engineering or Aeronautics*)	3	3
M.E. 65 (*Industrial Management*)	3	
M.E. 49 (*Thesis*)	2	
Eng. (41) (*Expository Writing*)		2
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	3	3
	19	16

COLLEGE OF TECHNOLOGY

TECHNOLOGY CURRICULUM IN PHYSICS

Freshman Year

	First Semester Credits	*Second Semester Credits*
Freshmen Assembly (*Required as scheduled*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
*Eng. 45, 46 (*English for Engineers*)	3	3
Chem. 3, 4 (*General Chemistry*)	4	4
Math. 5, 6 (*First-year Mathematics*)	5	5
M.E. S1, S2, S3 (*Elementary Shop Practice*)	2	2
M.E. 1, 2 (*Engineering Drawing*)	2	2
	18	18

Sophomore Year

Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 17, 18 (*Calculus*)	3	3
Ger. 1, 2 or 5, 6 (*German*)	3	3
Phy. 7, 8 (*General Physics*)	3	3
Phy. 9, 10 (*General Physics Laboratory*)	3	3
Chem. 25, 26 (*Intro. Quan. and Qual. Analysis*)	3	3
	17	17

Junior Year

Chem. 83, 84 (*Elementary Physical Chemistry*)	5	5
Math. 51, 52 (*Advanced Calculus, Diff'l. Eq'ns.*)	3	1
Math. 58 (*Vector Analysis*)		2
Phy. 61, 64 (*Electrical Theory and Measurements*)	3	3
Phy. 65, 66 (*Molecular Physics*)	3	3
Phy. 71, 72 (*Seminar*)	1	1
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

Phy. 55, 56 (*Experimental Physics*)	4	4
Phy. 57, 58 (*Intro. to Theoretical Physics*)	3	3
Phy. 71, 72 (*Seminar*)	1	1
Phy. 73, 74 (*Thesis*)	3	3
Mil. Sci. 15, 16 (*Coast Artillery*) *and/or approved electives*	6	6
	17	17

* A student must meet the requirements of Eng. 1 also. See page 244.

GRADUATE SCHOOL *

HERMON L. SLOBIN, *Dean*

DIVISIONS

BIOLOGICAL SCIENCES
EDUCATION
ENGINEERING
LANGUAGE AND LITERATURE
PHYSICAL SCIENCES
SOCIAL SCIENCE

OBJECTIVES

THE GRADUATE SCHOOL is designed to meet the needs of superior students for a more advanced training than may be obtained in an undergraduate curriculum. Graduate work is offered by competent members of the university departments of instruction and research, who constitute the school faculty. Administrative functions and supervision of advanced students are delegated to the dean of the Graduate school and the committee on graduate study.

ADMISSION

Admission to the Graduate school may be granted to graduates of all colleges and universities of approved standing provided their undergraduate records are satisfactory. Before entering upon graduate work in any division the applicant must present evidence to the effect that he has had the necessary prerequisite training that will enable him to pursue with profit the courses desired. A candidate for admission who intends to work for a master's degree must have had an undergraduate average of not less than 75 throughout his entire program of study. This requirement may be waived in the case of a mature college graduate who gives evidence of adequate professional experience or advanced study since graduation from an undergraduate program, upon petition to the Executive committee. Admission to the Graduate school does not imply admission to candidacy for the degree. A candidate for admission who does not intend to be a candidate for a degree may enroll in the Graduate school for any courses for which he has had sufficient preparation. No graduate student is admitted to candidacy for a degree until he has been in residence a sufficient time to enable his instructors to judge his ability to carry on graduate work. Generally this period of time shall be not less than one semester or two summer sessions. Admission to candidacy for a degree will be determined by the Executive committee.

ADVANCED DEGREES

The advanced degrees conferred are: Master of science, master of arts, master of education, and master of science in engineering.

* Detailed information concerning the Graduate School is given in the Graduate School Catalog, which may be secured from the registrar.

GRADUATE SCHOOL

Requirements for the Master's Degree

Residence.—A minimum of one full academic year, or four summer sessions of six weeks each, at the University of New Hampshire.

In the case of a student who offers six semester credits earned in another graduate school, the residence requirement will be reduced to three summer sessions or one semester and one summer session.

Subject.—A candidate for a degree will be enrolled in one of the divisions of the school and will do his work in the field of that division or in one of the subjects of the field.

Credits.—To obtain a master's degree the candidate must earn not less than 30 semester credits.

In general, all graduate work must be completed within a period of not more than eight years.

Transferred Credits.—Of the total credits required for a master's degree, not more than six may be transferred from another graduate school.

Graduate Credits for Senior Students.—Senior students in the University of New Hampshire must register in the Graduate school for any work for which they may subsequently apply for graduate credit.

Honorary Fellowships for Visiting Scholars

Properly qualified scholars who may desire temporarily the privileges of the library and research facilities of the university and who are not candidates for a degree may, upon recommendation of the dean of the Graduate school and the approval of the president of the university, be appointed honorary fellows without stipend. Honorary fellows shall not be required to pay any charges except possibly the cost of unusually expensive supplies or equipment.

Assistantships and Scholarships

Graduate assistantships, which usually require half-time service at a stated salary, are available in a number of departments. Graduate assistants pay tuition in accordance with the regulation pertaining to the members of the university staff. The residence requirement for a master's degree for holders of these appointments is not less than two years. Inquiries regarding assistantships should be addressed to the head of the department concerned.

A limited number of superior students who are legal residents of New Hampshire are awarded exemption from tuition. These awards are subject to the maintenance of a high scholarship record in the Graduate school and may be revoked at the end of any semester if the student does not merit such exemption for the subsequent semester.

DESCRIPTION OF COURSES

(Alphabetically Arranged)

The title of the course is given in small capital letters. The numeral designates the particular course. Odd numerals indicate courses offered in the first semester; even numerals indicate courses offered in the second semester.* Numerals enclosed in parentheses indicate that a course is repeated in the semester following. Thus, course 1 (1) is offered in the first semester and is repeated in the second semester.

Courses numbered 1–50 cannot be counted for graduate credit. Courses numbered 51–100 are for undergraduate and graduate students.

Following the title is the course description and the name of the instructor.

The next paragraph gives the following information in the order indicated: (1) prerequisites, if any; (2) the number of hours of recitations or laboratory periods required each week;* (3) the number of semester credits the course will count in the total required for graduation. Lectures and recitations are fifty-three minutes in length. Laboratory periods are two and one-half hours in length.

Abbreviations have been employed to indicate the number of hours of work required of students in lecture, recitation and laboratory and the number of credits given for satisfactory completion of each course. These abbreviations should be interpreted as follows:

Cr.....Semester hour credit
Lab.....Laboratory
Lec.....Lecture
Prereq.....Prerequisite
Rec.....Recitation

All courses (unless otherwise marked) are open to students who have passed the prerequisites.

An elective course will be given only when there is a minimum of five students registered therefor.

If the numerals designating a course running through both semesters are connected by a hyphen, the first semester, or its equivalent, is a prerequisite for the second semester. If the numerals are separated by a comma, properly qualified students may take the second semester without having had the first.

Students must register for the number of credits or within the range of credits shown in the catalog description of a course.

* During the war, to meet the demand for extreme flexibility of organization, many courses may be offered on double time so that an entire year of work in a subject may be completed in a semester. In this case twice as many periods a week as the number shown will be required. Students will be allowed to carry only half the usual number of courses.

ACCOUNTING

ACCOUNTING

(See ECONOMICS, page 228)

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

THOMAS G. PHILLIPS, *Professor;* STANLEY R. SHIMER, *Assistant Professor;* WALTER R. LEWIS, *Graduate Assistant;* JULIA RUTMAN, *Graduate Assistant.*

1. AGRICULTURAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer, Mr. Phillips.

Prereq.: Chemistry 2. Required of sophomores in agriculture. 3 lec.; 2 lab.; 5 cr.

2. AGRICULTURAL CHEMISTRY. The chemistry of plant growth, soils and fertilizers. Mr. Phillips.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

4. AGRICULTURAL CHEMISTRY. The chemistry of animal nutrition. Mr. Shimer.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

5. ORGANIC AND BIOLOGICAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer.

Prereq.: Chemistry 2. Required of juniors in home economics. 3 lec.; 2 lab.; 5 cr.

6. CHEMISTRY OF FOOD AND NUTRITION. The chemistry of food materials and of digestion, absorption, metabolism and excretion. Mr. Shimer.

Prereq.: Agricultural chemistry 5 or its equivalent. Elective for home economics students. 2 lec.; 1 lab.; 3 cr.

51-52. PHYSIOLOGICAL CHEMISTRY. The chemistry of fats, carbohydrates and proteins; colloids, enzyme action, digestion, metabolism and excretion. The qualitative and quantitative examination of blood and urine. Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 3 lec.; 2 lab.; 5 cr.

53-54. AGRICULTURAL ANALYSIS. A study of the methods of analysis of soils, fertilizers, feeding stuffs, and other products important in agriculture. Mr. Phillips, Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 1 lec.; 3 lab.; 4 cr. (Given in alternate years; not offered in 1943-44.)

For courses primarily for graduate students, see catalog of the Graduate school.

UNIVERSITY OF NEW HAMPSHIRE

AERONAUTICS

(See MECHANICAL ENGINEERING, page 282)

AGRICULTURAL ECONOMICS

HARRY C. WOODWORTH, *Professor;* HAROLD C. GRINNELL, *Associate Professor;* ARVAL ERIKSON,* *Assistant Professor.*

5. INTRODUCTORY AGRICULTURAL ECONOMICS. A survey course introducing the student to the relationships between agricultural enterprises, forms and distribution of land uses, population and resources, farm management, marketing, prices, relationship of government to agriculture, etc.

Required of freshmen in agriculture. Paired with animal husbandry 1; one-half semester. 3 lec.; 1 lab.; 2 cr.

11. AGRICULTURAL ECONOMICS. Production and distribution problems of the agricultural industry, the nature of farming costs, agricultural prices, farm credit, land utilization, federal and state action programs, and agricultural policy. Mr. Woodworth.

Required of juniors in certain curriculums. 3 lec.; 3 cr.

13. FARM RECORDS. A system of double-entry accounting applicable to the farm business is emphasized; construction and use of financial statements of the farm business; computation of income tax returns and of unit costs of production. Mr. Grinnell.

Required of juniors in certain curriculums. 1 lec.; 1 lab.; 3 cr.

14. FARM MANAGEMENT. The organization of the farm business from the point of view of efficiency and greatest continuous profit. Types of farming, factors affecting financial success, measures of financial success, cropping systems, livestock problems, labor problems, etc. Practical problems in analyzing typical farm businesses and in the reorganization of at least two near-by farms. Mr. Grinnell.

Required of seniors in agriculture, except those registered in agricultural chemistry, botany, entomology, forestry and poultry husbandry. 2 lec.; 1 lab.; 3 cr.

15. AGRICULTURAL MARKETING AND COÖPERATION. Functions and methods of marketing, and movement of principal agricultural products from farm to consumers. The essential characteristics of coöperative development in this country, its present importance, and principles underlying sound organization. Types of coöperatives, legal phases, problems in finance, and functions of the coöperatives are treated. Mr. Grinnell.

Required of juniors or seniors in agriculture except those registered in agricultural chemistry, botany, entomology, forestry and poultry husbandry. 3 lec.; 3 cr.

* On leave of absence.

51, 52. Special Problems in Agricultural Economics. Special assignments in readings and problems to satisfy students' needs may be arranged in special cases by permission of the head of the department. Mr. Woodworth, Mr. Grinnell.

Hours of meeting and number of credits to be arranged.

53. Agricultural Prices. Quantity-price relationships, measures of shifts in demand and supply, determination of prices, price stabilization, market discrimination, time elements in prices, commodity futures, etc.

Elective subject to approval of instructor. 3 lec.; 3 cr.

54. Agricultural Policy. Public policies involving conservation and agriculture will be studied and appraised. Production control, submarginal land purchase, soil conservation, forest regulation, storage control, dumping, reclamation, effect of various patterns of land utilization, the objectives and effect of various action programs. Mr. Woodworth.

Elective subject to approval of instructor. 3 lec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 307.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

AGRONOMY AND AGRICULTURAL ENGINEERING

Ford S. Prince, *Professor;* Leroy J. Higgins, *Assistant Professor;* George M. Foulkrod, *Assistant Professor;* Paul T. Blood, *Assistant Professor;* Edward W. Foss, *Instructor.*

Agronomy

2. Soils. The nature and properties of soils, with special consideration of the fundamental physical, chemical and biological processes and characteristics of productive soils. An introductory course for all students in the College of Agriculture and fundamental for those who continue in agronomy work. Laboratory work will supplement some of the more important principles considered in lectures. Mr. Higgins.

Required of freshmen in agriculture. Paired with entomology 6; one-half semester. 3 lec.; 1 lab.; 2 cr.

4. Fertilizers. The occurrence and function of plant food materials in soils and the use of manure and fertilizers in crop production. Special attention to the production, care and preservation of manure, to

the compounding of fertilizers, and the response of different types of crops. Mr. Prince.

Required of sophomores in agriculture. Paired with dairy husbandry 6; one-half semester. 3 lec.; 1 lab.; 2 cr.

13-14. Crop Production. An introduction to the general study, considering distribution, choice, growth processes, cropping practices, preparation of seed beds, care, improvement and breeding; also a detailed study of root crops and potatoes. Second semester continues in more detail concerning forage, cereals, and other crops grown in New England. Laboratory work in identification and judging. Hayland and pasture management will be emphasized. Mr. Higgins.

Required of juniors in agriculture, with a few exceptions. Teacher preparation majors may, by permission of the instructor, take course 14 without course 13. 2 lec.; 1 lab.; 3 cr.

15. Soil Utilization. Classification, utilization and management of soils, particularly those of New Hampshire. Available literature will be cited. Laboratory will consist of practical soil management and utilization problems, field trips and mapping. Mr. Higgins.

Prereq.: Agronomy 2. Elective for seniors. 2 lec.; 1 lab.; 3 cr.

16. Seed Testing. Official method of analysis of agricultural seeds for purity and germination, the identification of seeds, and the technique of using equipment in weighing, germinating, counting, estimating, etc., for official reports. Mr. Higgins.

Prereq.: Botany 1 and agronomy 14. Elective for a very limited number of seniors. Hours arranged. 1 lab.; 1 cr.

51, 54. Agronomy Seminar. Library and reference work on special phases of soil and crops problems. Practice in looking up literature and in preparation of reports and abstracts. Mr. Prince and staff.

Prereq.: Agronomy 1, 2, 3-4. Number of credits and hours to be arranged.

56. Forest Soils. A study of the relationship between soils and forestry, which includes a study of soil type and group identification, identification and analysis of the forest floor and of forest soils, the use of the soil survey for purposes of the forester and a discussion of the fertilization of forest soils. Mr. Prince and staff.

Prereq.: Chemistry 1, Agronomy 1 and certain forestry courses. 1 lec.; 2 lab.; 3 cr. (Not offered in 1943–44.)

58. Soil Classification and Mapping. A study of the origin, morphology, classification and mapping of soils. Consideration is given to the development of the Great Soil Groups of the world, including their influences on the agriculture that has developed thereon, and special emphasis will be devoted to the soils of New Hampshire in classification, mapping and the relation of the various groups to crop production.

Prereq.: Agronomy courses at the discretion of the instructor. 1 lec.; 2 lab.; 3 cr. (Not offered in 1943–44.)

60. Soil Conservation. The effects and control of erosion in the United States, including a study of the causes of erosion, cropping systems, fertilizer practices and structural devices that have been found of importance in controlling erosion and in preserving the value of the soil for future generations. Mr. Prince, Mr. Foulkrod, Mr. Higgins.

Prereq.: Agronomy 1 and 2, and either 3 or 4. 1 lec.; 2 lab.; 3 cr.

Agricultural Engineering

5. Basic Agricultural Engineering Applications. Farm mechanics; farm water supply and sanitation; farm machinery and power applications; farm drawing and sketching; and types and purposes of farm buildings are covered in theory and demonstration. Mr. Foulkrod.

Required of sophomores in agriculture. Paired with horticulture 1; one-half semester. 3 lec.; 1 lab.; 2 cr.

12. Farm Power and Machinery. The farm tractor and its special tools. A review of the development of farm machines, especially those of economic importance in this section. Care, repair and adjustment will be carefully considered in the laboratory, supplemented by operation under actual field conditions. Four to six makes of modern tractors, several gas engines and a variety of field machines are available. Mr. Foulkrod.

Prereq.: Agricultural engineering 5. Recommended for seniors in general agriculture, animal husbandry, dairy husbandry, and poultry husbandry. Elective for all other agricultural juniors and seniors. 1 lec.; 1 lab.; 2 cr.

13. Electric Farm Power. The comparative utility of individual plant and central station current; rural line extension procedure; proper wiring for farm applications with particular emphasis on household, farmstead, dairying, poultry farm and horticultural uses. The economics of various methods, cost of operation, care and maintenance of equipment, quality of results obtainable and effect on the farm labor problem. Mr. Foulkrod.

Recommended for seniors in animal husbandry, dairy husbandry and horticulture, and juniors in poultry husbandry. Elective for all other agricultural juniors and seniors. 2 rec.; 1 lab.; 3 cr.

14. Agricultural Drawing. Designed to meet the needs of all agricultural students. The elementary principles of drawing and lettering, the application of these principles to the making of charts, graphs, maps, machines and shop sketches, as well as to plans for minor farm buildings. Mr. Foulkrod.

Elective for any student. 1 lab.; 1 cr.

15. Farm Buildings and Equipment. Lectures on types and purposes of farm shelters, materials, equipment and sanitary requirements.

Drafting room work in design and laboratory work in construction, with special attention to remodeling existing buildings. Mr. Foss.

Prereq.: Agricultural engineering 14. Elective for all juniors and seniors in agriculture. 1 lec.; 1 lab.; 2 cr.

16. Farm Mechanics Shop. Planned to give seniors in teacher preparation practice in farm mechanics; to develop skill with tools, and general knowledge of farm mechanics applications. A modern farm shop is employed. Mr. Foss.

Required of agricultural teacher preparation seniors. 2 lab.; 2 cr.

ANIMAL HUSBANDRY

Loring V. Tirrell,* *Professor;* Fred E. Allen, *Assistant Professor;* Nicholas F. Colovos, *Assistant Professor;* Harry A. Keener, *Instructor.*

1. Types and Market Classes of Livestock. Origin, history, development, characteristics, and adaptability of the different types of horses, cattle, sheep and swine to different conditions of climate and soil. One afternoon each week devoted to judging.

Required of freshmen in agriculture. Paired with agricultural economics 5; one-half semester. 3 lec.; 1 lab.; 2 cr.

11. Livestock Judging. The principles and practice of judging horses, beef cattle, sheep and swine, and of market classes and grades. The university judging teams for such expositions as the Eastern States at Springfield and the International at Chicago are selected from students taking courses 11 and 14. Trips are taken to some of the best breeding establishments in New England.

Required of sophomores or juniors electing animal husbandry. 1 lab.; 1 cr.

13. Feeds and Feeding. The character, composition and digestibility of feedstuffs, and the methods of feeding different kinds of farm animals. Numerous samples of grains and by-products are used. Practice in calculating rations. Mr. Colovos.

Required of seniors in animal husbandry, dairy husbandry, general and teacher preparation curriculums. 3 lec.; 3 cr.

14. Advanced Livestock Judging. A continuation of animal husbandry 11 and open to students who have previously taken 11.

Required of sophomores or juniors. 1 lab.; 1 cr.

15, 16. Veterinary Science. Systematic anatomy of the different farm animals, animal physiology, and the prevention of animal diseases. In the second semester, the more common diseases of farm animals, their prevention and control. Mr. Allen.

Required of juniors in animal husbandry. Elective for others. 3 lec.; 3 cr.

* On leave of absence.

18. Meat and Its Products; Livestock Markets. A study of meat, farm slaughter, curing and identification of cuts; livestock markets, stockyards and transportation. Occasional trips will be taken to slaughter houses and packing plants.

Required of seniors in animal husbandry. Elective for others. 1 lec.; 1 lab.; 2 cr.

19. Management of Horses and Beef Cattle. Lectures and recitations upon the care of brood mares and cows, management of stallions and bulls, the breaking and training of colts, preparation of animals for the show ring, the management of pure-bred beef herds, and the feeding and handling of steers.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

20. Sheep and Swine Husbandry. The judging, breeding, feeding, management and preparation for the show ring of sheep and swine, with special reference to New Hampshire conditions.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

22. Advanced Livestock Judging. A repetition of course 14.

Elective only for animal husbandry students who have completed 11 and 14. 1 lab.; 1 cr.

51. Animal Breeding. The principles and practices of breeding farm animals, including cross-breeding, in-breeding, selection, inheritance, breed analysis, reproductive efficiency, fertility, sterility. Mendelism in relation to farm animals, acquired characters and variation. Practice is given in tracing and studying pedigrees. Mr. Keener.

Required of seniors in animal husbandry. 2 lec.; 1 lab.; 3 cr.

52. Animal Husbandry Seminar. Library and reference work and the preparation of papers on various animal husbandry subjects of timely importance. Mr. Keener.

Required of seniors in animal husbandry. Elective for others. Hours and credits to be arranged.

For courses primarily for graduate students, see catalog of the Graduate school.

ARCHITECTURE

Eric T. Huddleston, *Professor;* Arnold Perreton, *Assistant Professor.*

The courses marked "Elective by permission" are open to all students in the university. (See also Arts section of this catalog.) Other courses, not so marked, may be elected only when sufficient evidence of student interest and purpose is demonstrated to the satisfaction of the department.

2. Elements of Architecture. The fundamentals of architectural appreciation and expression. Illustrated lectures on the basic modern building materials, the construction and design fundamentals of architectural elements such as walls, columns, floors, ceilings, roofs, doors, windows, ornaments, etc., and their respective terminology. Also, by means of the students' required collection of architectural illustrations, is shown the varied application of the elements and their fundamental relation to contemporary architectural usage. Mr. Perreton.

Elective by permission. 2 rec.; 2 cr.

4. The Significance of Architecture. Non-technical, requiring no previous architectural experience. A comprehensive view of the architectural profession, its allied arts, and the building construction industry to the end that the student's interest in further study in these fields may be better directed. Mr. Huddleston.

Elective by permission. 2 rec.; 2 cr.

5-6. History of European Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods, with an analysis of the environment, the style evolved, and the chief contributions of each period to architectural expression. Mr. Perreton.

Elective by permission. 2 rec.; 2 cr.

7. History of American Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods. The social conditions, the type of architecture, the work of the outstanding architects in the various geographical sections, and the chief contribution of each period to architectural expression. Mr. Perreton.

Elective by permission. 2 rec.; 2 cr.

9. Principles of Architectural Design. Illustrated lectures with assigned reading on the study of individual needs and environmental factors which influence architectural design; principles governing the organization of space, structure, and aesthetics and their application to the design analysis of various types of buildings. Aims to develop a basis for the understanding and expression of use, beauty and character in present-day architecture. Mr. Perreton.

Elective by permission. 2 rec.; 2 cr.

11, (11). Camouflage. This is intended as a foundation course for those interested in camouflage training. The instruction includes a series of lectures on camouflage procedure, basic design principles, materials, technique, estimate, and methods of practices and maintenance. The lectures are followed by a series of simple problems on various types of camouflage applications. Mr. Perreton.

Elective. 2 rec.; 2 cr.

13-14. Domestic Architecture. A brief history of domestic architecture with special emphasis on early American housing as a basis

for an appreciation of the New England colonial architecture. Modern housing problems, including the relation of the house plan to family requirements, to the individual site, to the garden, to accessory buildings, and to the community, with special consideration of economy in design and material, as it affects initial building and maintenance costs, and of the need for intelligent coöperation on the part of the prospective owner with the architect and builder. Mr. Huddleston.

13, Elective by permission. 3 rec.; 3 cr. 14, Prereq.: Arch. 26. 2 rec., 2 cr.

15. Professional Practice. The personal, ethical, business and legal relations of the architect with clients, contractors, craftsmen, etc., and the relations that should exist between the architect and the community in which he lives. Procedure in the conduct of an architect's office, i.e., contract forms, bookkeeping, and accounting as they apply to professional work. Mr. Huddleston.

Prereq.: Arch. 9. 2 rec.; 2 cr.

16. Specifications and Appraising. The fundamentals of specification writing and the preparation of an outline specification adapted to the requirements of the thesis problem designed by each student. Methods of estimating and appraising buildings, both before and after construction. Mr. Huddleston.

Prereq.: Arch. 20 or C.E. 15. 2 rec.; 2 cr.

17-18. Plumbing, Heating, and Electric Equipment. A study of the principles of plumbing, heating, and electricity as applied to the various types of equipment used in residential and public buildings. Laboratory exercises in the design of simple piping and wiring systems.

2 lec.; 1 lab.; 3 cr.

19-20. Building Construction. The principles of structural design and an analysis of structural systems as applied to wood frame house, light and heavy timber, steel and reinforced concrete construction. Emphasis is on the selection of structural systems in the solution of various types of construction problems; also the practical methods used in applying the various materials of construction as they occur in modern practice, and the introduction of plumbing, heating, ventilating, and electrical equipment. Mr. Huddleston.

Prereq.: Architecture 26. 3 lab.; 3 cr.

21. Architectural Seminar. Library research and the preparation of papers on approved subjects related to the thesis problems. Each student is required to lead the discussion on his subject. Mr. Huddleston.

1 rec.; 1 cr.

24. Shades, Shadows and Perspective. Determination of conventional shades and shadows in architectural drawings; architectural application of descriptive geometry; theory of perspective and practical

construction of perspective drawings. Rendering in wash of problems illustrating light, shade, and shadow.

Elective by permission. 1 lec.; 2 lab.; 3 cr.

26. Architectural Design. Drafting room exercises paralleling the lectures on elements of architecture (Architecture 2). The accepted methods of architectural drafting. Measured drawings showing the relation of material, construction and design, drawn from field sketches and photographs of existing elements. Design studies of interior and exterior elements and motives. Mr. Perreton.

Architecture 2 must be taken either in parallel or as a prerequisite. Elective by permission. 2 lab.; 2 cr.

27-28. Architectural Design. A progressive series of competitive problems in the composition of architectural elements in interior and exterior design, with special emphasis given to the correct use of the modern materials and structural forms of design. Mr. Perreton.

Prereq.: Architecture 24 and 26. Elective by permission. 3 lab.; 3 cr.

29-30. Architectural Design. A progressive series of competitive problems applying the materials, elements and principles of architecture to the design of contemporary buildings. Special emphasis given to the design of residential, recreational, commercial and municipal buildings of town and small city scale. Mr. Perreton.

Prereq.: Architecture 28. 6 lab.; 6 cr.

31-32. Architectural Design and Thesis. The design of the first semester includes a practical course of building design to familiarize the student with the fundamental process of working drawing development in the architect's office. A residence or small public building will be designed to conform to the specified requirements of hypothetical clients. This is followed with working drawings and details, including structural and equipment drawings. The design for the first half of the second semester will include a collaborative problem in a civic or residential development. The thesis for the second half includes an architectural research project. An approved project proposed by the student will be used. The purpose of the project is to provide the training and opportunity to do individual research, to exercise originality and inventiveness in the practical solution of a building type in his particular field of interest. Mr. Perreton and Mr. Huddleston.

Prereq.: Architecture 30. 6 lab.; 6 cr.

33-34. Architectural Design. An approved program proposed by the student will be used for advanced study. Mr. Perreton.

Prereq.: Architecture 30. Elective by permission only. Credits to be arranged.

35, (35). Working Drawings. Complete working drawings are made of a building designed by the student and include dimensioned

plans, elevations, sections, small and full-size details and framing drawings. Mr. Huddleston.

2 lab.; 2 cr.

NOTE: The following architecture courses are now offered in the department of the Arts. See pages 209–210 for course descriptions.

37. FREEHAND DRAWING. Now listed as ARTS 23 (*Elementary Drawing and Design*).

38. FREEHAND DRAWING. Now listed as ARTS 24 (*Elementary Drawing and Design*).

39-40. FREEHAND DRAWING. Now listed as ARTS 25-26 (*Advanced Drawing and Design*).

41-42. WATER COLOR AND MODELING. Now listed as ARTS 27-28 (*Water Color Painting*).

45, 46. ADVANCED FREEHAND DRAWING. Now listed as ARTS 29-30 (*Advanced Painting, Water Color or Oils*).

47-48. INTRODUCTION TO THE ARTS. Now listed as ARTS 31-32 (*Introduction to the Arts*).

49, (49). STAGECRAFT. Now listed as ARTS 35, (35) (*Stagecraft*).

THE ARTS

GEORGE R. THOMAS, *Associate Professor;* PAUL L. GRIGAUT, *Associate Professor;* IRMA G. BOWEN, *Assistant Professor;* HARLAND P. NASVIK, *Assistant Professor;* EDWIN SCHEIER, *Instructor;* VERNA E. MOULTON, *Instructor;* WESLEY F. BRETT, *Instructor;* MARION MOODY, *Assistant.*

1. ELEMENTARY HANDICRAFTS. A series of simple projects using different media and techniques especially adapted to use in the practice of occupational therapy. Students retaining finished products pay for the cost of materials used. Miss Bowen.

Required of occupational therapy students. 2 lab.; 2 cr.
This course cannot be used to satisfy major requirements.

3, 4. HANDICRAFTS. (Formerly H.E. 9, 10.) An experimental laboratory course offering opportunity to become acquainted with elementary work in handicrafts either as a hobby or for use in camps, playgrounds and in occupational therapy. There is a choice from among fifteen or more crafts such as weaving, leather work, pyrography, chip carving, embroidery, Viennese stenciling, plastic marble, and others, which are conducted at the Craft cottage. The cottage is open daily, making some choice in laboratory hours possible. Students

retaining finished products pay for the cost of materials used. Miss Bowen.

Consultation with Miss Bowen should precede registration. Required of occupational therapy students. Elective for others. 1–3 cr.

5, 6. HANDICRAFTS. A continuation of the work in Arts 3, 4 covering other crafts, or more advanced work in those previously studied. Students retaining finished products pay for the cost of materials used. Miss Bowen.

Consultation with Miss Bowen should precede registration. Prereq.: Arts 3 or 4. Required of occupational therapy students. Elective for others. 1–3 cr.

7, 8. HANDICRAFTS. A continuation of the work in Arts 5, 6 covering other crafts of more advanced work in those previously studied. Students retaining finished products pay for the cost of materials used. Miss Bowen.

Consultation with Miss Bowen should precede registration. Prereq.: Arts 5 or 6. Elective for sophomores, juniors, and seniors. 1–3 cr.

11-12. MODELING. Elementary work in modeling in relief and the round figure. An introduction to ceramic sculpture and to the processes of casting in plaster and papier-mâché. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Required of occupational therapy students. Elective for others. 1 lab.; 1 cr.

13-14. CARVING. An introduction to round and relief carving in soap, wood and plaster. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Required of occupational therapy students. Elective for others. 1 lab.; 1 cr.

15, 16. CERAMICS (*Pottery*). (Formerly H.E. 11, 12.) Design and construction. Laboratory practice in throwing, casting, modeling, decorating, glazing, and firing of pottery, tiles, and figures. Modeling in ceramic clay and plasticine. Preparation of piece molds and study of other casting problems. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Required of occupational therapy students. Elective for others. 1–3 cr.

17, 18. CERAMICS (*Pottery*). (Formerly H.E. 13, 14.) A further study of design and construction, with special emphasis on decoration and the preparation and application of glazes. Students retaining finished products pay for the cost of materials used. Mr. Scheier.

Prereq.: Arts 15, 16. Elective for sophomores, juniors, and seniors. 1–3 cr.

19, 20. PUPPETRY. Design and construction of hand puppets, marionettes and shadow puppets. Writing and production of puppet plays and pantomimes. Mr. Scheier.

Required of occupational therapy students. Elective for others. 2 lab.; 2 cr. (Not offered in 1943–44.)

23. ELEMENTARY DRAWING AND DESIGN. (Formerly Arch. 37, *Freehand Drawing.*) Studio exercises in graphical representations designed to stimulate and develop the student's expression of creative thoughts. Original ideas will be guided through the process of development by criticism and suggestions only, the student being given perfect freedom for self-expression. Mr. Thomas and Mr. Brett.

Open to all students. 2–3 lab.; 2–3 cr.
This course cannot be used to satisfy major requirements.

24. ELEMENTARY DRAWING AND DESIGN. (Formerly Arch. 38, *Freehand Drawing.*) Elementary drawing in various media from casts, still-life and nature, aiming at the stimulation and development of creative thought through the study of fundamental forms. Exercises in lettering, block printing and color. Students desiring a foundation in elementary anatomical illustration will be given problems suited to their specific fields of work. Mr. Thomas and Mr. Brett.

Open to all students. 2–3 lab.; 2–3 cr.
This course cannot be used to satisfy major requirements.

25, 26. ADVANCED DRAWING AND DESIGN. (Formerly Arch. 39-40, *Freehand Drawing.*) Advanced studio exercises in various media from casts and from life, with attention to composition, accurate reproduction of proportions, the principles of freehand perspective, and the expression of mass by means of line and simple light and shade. Weather permitting, sketching from nature will supplement the work in the studio. Mr. Thomas.

Elective by permission. 2–3 lab.; 2–3 cr.

27, 28. WATER COLOR PAINTING. (Formerly Arch. 41–42, *Water Color and Modeling.*) Exercises in the handling of wash; studies in water color from documents, photographs and still-life; supplemented with lectures presenting the theories of color, scientific and aesthetic, and their application. Outdoor sketching, if weather permits. Mr. Thomas.

Elective by permission. 1 lec.; 2 lab.; 3 cr.

29, 30. ADVANCED PAINTING, WATER COLOR OR OILS. (Formerly Arch. 45, 46, *Advanced Freehand Drawing.*) A general advanced study of special types, depending upon the student's previous training. A variety of studio work under individual supervision and criticism. Mr. Thomas.

Special permission must be obtained from the head of the department before registering in this course. Hours and credits to be arranged.

31, 32. Introduction to the Arts. (Formerly Arch. 47-48, *Introduction to the Arts.*) A broad historical survey of man's creative efforts in their relation to contemporary cultural and social movements, presented as a background for interpreting the place of the arts in individual and community life of today. Illustrated lectures with assigned readings. Mr. Thomas.

Elective for sophomores, juniors, and seniors. 3 lec.; 3 cr.

33. Survey of European Art. The development of art, especially painting, in Europe from the Renaissance to the present, with particular emphasis on French art of the 19th and 20th centuries. Illustrated lectures, assigned readings and reports. Mr. Grigaut.

Elective for sophomores, juniors, and seniors. 3 lec.; 3 cr.

35, (35). Stagecraft. [Formerly Arch. 49, (49), *Stagecraft.*] This course is given in conjunction with Play Production [English 5 (5)], and is designed to give selected students practical experience in artistic and technical projects connected with staging plays. It is designed also to give students in technical fields an opportunity to apply in practice some of the theoretical knowledge acquired in formal courses. It includes scene design and construction, scene painting and lighting, stage costuming, mechanical effects, and the technique of stage management. This is not an elective course, but qualified students are chosen for it on the basis of their abilities. The work of the course is supervised by the director of dramatics in collaboration with the instructor in the technical fields involved. Mr. Hennessy, Mr. Brett, and others.

Elective by permission only. Laboratory and conference periods. ½ to 1 cr. (Registration for this course is to be completed during the registration period.)

39, (39). Elementary Photography. [Formerly Photography 1, (1).] The theory and technique of photography, covering camera operation, printing, enlarging, and presentation. Special lectures on optics and photographic chemistry by physics and chemistry department staff members. Mr. Nasvik.

Open to sophomores, juniors and seniors with permission of the instructor. 1 lec.; 2 lab.; 3 cr. Laboratory fee: $5.00.

43, 44. Historic Costume and Design. (Formerly H.E. 7, 8.) Costume changes from the primitive to the present, and something of the historical events that influenced such changes. Adaptation of period costume to modern use. Miss Moulton.

First semester: 3 lec. or rec.; 3 cr. Second semester: 1 lec.; 2 lab.; 1–3 cr.

45. Elementary Library Methods. A course in library methods giving a brief survey of the detail involved in the management of a small circulating library.

Required of occupational therapy students. Elective for others. 1 lab.; 1 cr. (Not offered in 1943–44.)
This course cannot be used to satisfy major requirements.

47-48. Theory of Occupational Therapy. An interpretive course covering the principles and practice of occupational therapy in relation to the various curative fields.

Prereq.: Arts 5, 6 or its equivalent. Required of occupational therapy students. 2 lec.; 2 cr. (Not offered in 1943–44.)
This course cannot be used to satisfy major requirements.

49-50. Clinical Subjects. A series of clinical lectures covering the various disabilities and general medical and surgical conditions pertaining to the practice of occupational therapy.

Prereq.: Zoöl. 17, 18. Required of occupational therapy students. 2 lec.; 2 cr. (Not offered in 1943–44.)
This course cannot be used to satisfy major requirements.

52. Advanced Photography. Each student will be assigned a special problem, in which he will outline a project and prepare and present a series of not less than 10 photographs to illustrate a single theme. Mr. Nasvik.

Prereq.: Completion of Photography 1 with a grade of 85 or better, and the permission of the instructor. 1 rec.; 5 lab.; 3 cr. Laboratory fee: $2.50.

Art-Education (art-ed) 91. Problems of Teaching Art in Elementary Schools.

Required of students completing the Art Education Curriculum. 2 rec.; 1 lab.; 3 cr. (Not offered in 1943–44.)

Art-Education (art-ed) 92. Problems of Teaching Art in Secondary Schools.

Required of students completing the Art Education Curriculum. 2 rec.; 1 lab.; 3 cr. (Not offered in 1943–44.)

Education-Art (ed-art) 94. Supervised Teaching in Secondary School Art.

Prereq.: Art-Ed 92. One semester of supervised teaching, 6–14 cr.

Selection from the following courses offered by several departments within the university may, with consent of the head of the department, be counted toward a major program in the arts:

Architectural Composition. See Architecture 9. Mr. Perreton.

Architectural Design. See Architecture 26. Mr. Perreton.

Domestic Architecture. See Architecture 14. Mr. Huddleston.

Elementary Landscape Gardening. See Horticulture 28. Mr. Clapp.

ELEMENTS OF ARCHITECTURE. See ARCHITECTURE 2. Mr. Perreton.

FLORAL ARRANGEMENT. See HORTICULTURE 38. Mr. Clapp.

FORGE SHOP. See MECHANICAL ENGINEERING S13 (S13). Mr. O'Connell.

HOME BUILDING AND FURNISHING. See ARCHITECTURE 13 and HOME ECONOMICS 32. Miss Mitcham.

HISTORY OF EUROPEAN ARCHITECTURE. See ARCHITECTURE 5-6. Mr. Perreton.

HISTORY OF AMERICAN ARCHITECTURE. See ARCHITECTURE 7. Mr. Perreton.

SHADES, SHADOWS AND PERSPECTIVE. See ARCHITECTURE 24. Mr. Thomas.

THE SIGNIFICANCE OF ARCHITECTURE. See ARCHITECTURE 4. Mr. Huddleston.

WOOD WORK. See MECHANICAL ENGINEERING S3 (S3). Mr. Batchelder.

WOOD SHOP. See MECHANICAL ENGINEERING S6. Mr. Batchelder.

For courses in music, dramatic art, and dancing, see departments of music, English, physical education for women.

A special university committee on fine arts promotes on the campus a series of exhibitions and lectures treating the arts. Visits to nearby museums and points of interest are arranged from time to time, and published lists of these visits are available. The following are a few of the art centers within a convenient radius of Durham: Addison Gallery of American Art, Currier Gallery of Art, Museum of Fine Art of Bowdoin College, and several excellent museums and galleries in Boston, including the Boston Museum of Fine Arts, the Gardner Museum, and the Fogg Museum at Harvard University.

BACTERIOLOGY

(See pages 114 and 213–214.)

BIOLOGY

C. FLOYD JACKSON, *Professor;* LAWRENCE W. SLANETZ, *Associate Professor;* ALBION R. HODGDON, *Associate Professor;* EDYTHE T. RICHARDSON, *Assistant Professor;* MARIAN E. MILLS, *Assistant Professor;* STUART DUNN, *Assistant Professor;* CHARLES G. DOBROVOLNY, *Assistant Professor;* M. C. RICHARDS, *Assistant Professor;* PAUL E. SCHAEFER, *Assistant Professor;* ELEANOR L. SHEEHAN, *Instructor;* HERBERT E. WARFEL, *Instructor;* *H. GILBERT CRECELIUS, *Instructor;* ARTHUR F. HOWE, *Instructor;* ERMA L. ANDREWS, *Assistant;* P. FERN DRUMHELLER, *Graduate Assistant;* ELIZABETH M. GARMAN, *Graduate Assistant;* ELIZABETH J. MURPHY, *Graduate Assistant;* ARTHUR J. SHANAHAN, *Graduate Assistant.*

* On leave of absence.

1, (2), (1), 2. MAN AND THE LIVING WORLD. This is a basic course dealing with the elements of human biology. The chief theme of the course is man's relation to the living world and the nature of that world of which man forms a part. Biology 1, (1) deals with the nature and characteristics of plants and their relations to man. Biology 2, (2) deals with the nature and characteristics of animals and their relation to man. This course meets the biological science requirements of the College of Liberal Arts. Students electing Biology (2) the first semester will elect Biology (1) the second semester. Mr. Jackson, Mr. Hodgdon, Miss Mills, Mr. Richards, Miss Sheehan, Mr. Schaefer, Miss Andrews.

Freshman course. 3 lec. or rec.; 1 lab.; 4 cr.
This course cannot be used to satisfy major requirements.

54. CLINICAL LABORATORY METHODS. This is a practical, applied course covering all phases of laboratory work performed by technicians in hospital or public health laboratories. It will include clinical methods in chemistry, hematology, bacteriology, serology and parasitology. For students planning to become laboratory technicians and students planning to do similar work in army or navy hospital laboratories. Mr. Slanetz, Mr. Dobrovolny, Mr. Shimer.

Prereq.: Permission of instructor. 1 lec.; 3 lab.; 5 cr.

BIOLOGY-EDUCATION (BI-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL BIOLOGY. The objectives and methods of teaching high school biology. The selection and organization of subject matter, the use of visual aids, the setting up of aquaria and other class projects will be stressed. Mr. Schaefer.

Prereq: See page 235. 3 rec.; 3 cr.

EDUCATION-BIOLOGY (ED-BI) 93, 94. SUPERVISED TEACHING IN HIGH SCHOOL BIOLOGY. See page 236, 237.

BACTERIOLOGY

MR. SLANETZ, *In Charge*

1. GENERAL BACTERIOLOGY. Principles of bacteriology; methods for the isolation, cultivation and identification of bacteria and other microorganisms; morphology, physiology and classification of bacteria, and their relationships to agriculture, industry, sanitation and infectious diseases. Mr. Slanetz, Mr. Howe.

Prereq.: Chemistry 1-2 or equivalent. 2 lec.; 2 lab.; 4 cr.

2. APPLIED BACTERIOLOGY. Important pathogenic bacteria, bacteriological and serological methods for the classification of bacteria and diagnosis of disease. Methods of testing disinfectants. The bacteriology of soil, water, sewage, milk and food products. Mr. Slanetz, Mr. Howe.

Prereq.: Bacteriology 1. 2 lec. or rec.; 2 lab.; 4 cr.

3. Elements of Microbiology. Lectures and recitations or laboratory demonstrations on the nature and characteristics of bacteria, viruses, yeast and molds; the relationships of these microörganisms to agriculture, industry, sanitation and infectious diseases. For students who, as part of their cultural training, desire some knowledge of microbes and their rôle in everyday life. Mr. Slanetz.

Elective for junior and senior students only. 3 lec. or rec.; 3 cr.

6. Agricultural and Soil Bacteriology. Study of important soil bacteria and their rôle in soil fertility; characteristics of bacteria and viruses causing plant disease. Mr. Crecelius.

Prereq.: Bacteriology 1. 3 lec.; 1 lab.; 4 cr.

51. Pathogenic Bacteriology and Serology. The morphological, cultural, biochemical and serological characteristics of pathogenic microörganisms. Practical serological technique for disease diagnosis and identification of bacteria. Mr. Slanetz, Mr. Howe.

Prereq.: Bacteriology 2. 2 lec.; 2 lab.; 4 cr.

55, 56. Advanced Bacteriology. Special problems, depending upon the training and desire of the student. Elective only upon consultation. Mr. Slanetz.

Prereq.: Bacteriology 2 and Chemistry 53 and 54 or their equivalent. Credits to be arranged.

57, 58. Bacteriology Seminar. Reports and discussions on current literature and recent developments in bacteriology. Mr. Slanetz.

Prereq.: Bacteriology 2 and consent of instructor. One 2-hour period; 1 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

Botany

Mr. Hodgdon, *In Charge*

1. General Botany. The seed-bearing plants with emphasis on structure and function of organs and economic products derived. Miss Mills.

Required of freshmen in agriculture. Elective for others. 2 lec.; 2 lab.; 4 cr.
This course cannot be used to satisfy major requirements.

2. General Botany. A general survey of entire plant kingdom with emphasis on development, reproduction and evolutionary trends. Miss Mills.

Prereq.: Botany 1. Elective for any student. 2 lec.; 2 lab.; 4 cr.
This course cannot be used to satisfy major requirements.

3. Plant Anatomy and Cytology. The anatomy of seed plants as revealed by free-hand and sliding microtome sections and simple

staining. A brief review of cell structure as shown by cytological methods. Mr. Dunn.

Prereq.: Biology 1 or Botany 1. 2 lab.; 2 cr. (Formerly given as 3, *Plant Histology.*)

4. Plant Physiology. Structure and properties of the cell; absorption and movement of water; metabolism; growth and irritability. Mr. Dunn.

Prereq.: Biology 1 or Botany 1, and one year of chemistry. 2 lec.; 2 lab.; 4 cr.

6. Systematic Botany. The study of our native flora; the scientific naming of plants, and the identification of plants by the use of keys and standard floras. The important plant families will be studied and their evolutionary relationship will be stressed. Mr. Hodgdon.

Prereq.: Biology 1 or Botany 1. 1 lec.; 2 lab.; 3 cr.

51. Plant Pathology. The nature of disease in plants, the etiology, symptomatology, and classification of plant diseases. Mr. Richards.

Prereq.: One year of biology or Botany 1 and 2. 1 lec.; 2 lab.; 3 cr.

52. Principles of Plant Disease Control. Studies in the principles of plant disease control, exclusion, eradication, protection, and immunization; and in the specific, practical methods used to control plant diseases. Mr. Richards.

Prereq.: One year of biology or Botany 1 and 2. 1 lec.; 2 lab.; 3 cr.

53, 54. Advanced Botany. The subject matter will depend upon the training and desire of the student. Elective only upon consultation with head of department.

Credits and instructors to be arranged.

55. Advanced Systematic Botany. The principles of plant classification and the laws governing the naming of plants; an analysis of the great systems of classification; an appraisal of the more important plant families. Problems will be assigned involving field work, library study, and use of the herbarium. Mr. Hodgdon.

Prereq.: Biology 1 or Botany 1 and Botany 6, or permission of instructor. Occasional lectures, laboratory work, field trips. 4 cr.

Zoölogy

Mr. Jackson, *In Charge*

3, 4. Hygiene and Sanitation. The principles of health preservation; hygiene of digestion, muscular hygiene, neural hygiene, and other important physiological processes affecting health. A study of food, water, and general sanitation, and the control of bacterial disease. Mr. Dobrovolny.

Prereq.: Biology 1, 2. 3 lec. or rec.; 3 cr.

5, 6. ORGANIC EVOLUTION. The various problems of evolution and their relation to human life. Evidence of man's origin based on anatomical, embryonic and paleontological data.

Prereq.: Junior standing and Biology 1, 2. 3 lec. or rec.; 3 cr. (Not offered in 1943–44.)

15-16. COMPARATIVE ANATOMY OF THE VERTEBRATES. A basic course for pre-medical students and zoölogy majors dealing with the anatomy of the vertebrates, and illustrating the evolution of the organs and systems of the mammal. Includes a study of fundamental principles of vertebrate zoölogy. Selected vertebrate types dissected in the laboratory. Mr. Warfel.

Prereq.: Biology 1, 2. 2 lec.; 2 lab.; 4 cr.

17, 18. HUMAN ANATOMY AND PHYSIOLOGY. The structure and function of the human body, with a detailed study of the different systems. Collateral readings, written reports and conferences. Mrs. Richardson.

Prereq.: Biology 1, 2. 3 lec.; 3 cr.

ADVANCED COURSES

53. HISTOLOGY. This course gives the students a familiarity with the microscopical anatomy of the principal tissues and organs of vertebrates. Adapted to the needs of the general students and those intending to study medicine. Mr. Dobrovolny.

Prereq.: Biology 1, 2 and one year of zoölogy and permission of the instructor. 2 lec.; 2 lab.; 4 cr. (Formerly given as first semester course, 53-54, *Histology and Development.*)

54. EMBRYOLOGY. A study of the fundamental principles of development. The origin of the individual and the developmental process from the egg to the formation of the body and the establishment of the principal organs and systems. The laboratory work includes a study of type forms of embryos. Mr. Dobrovolny.

Prereq.: Biology 1, 2 and one year of zoölogy. 2 lec.; 2 lab.; 4 cr. (Formerly given as second semester course 53-54, *Histology and Development.*)

55. INVERTEBRATE ZOÖLOGY. A survey of the major invertebrate groups with special emphasis on the anatomy and physiology of free-living forms. The evolution of the various phyla and their ecological relationships will be considered. Miss Sheehan.

Prereq.: One year's work in biology and permission of the instructor. 2 lec.; 2 lab.; 4 cr. (Not open to students who have had Zoölogy 51, 52.)

56. PARASITOLOGY. An introductory course concerned with some of the more important parasites causing diseases of man and animals. Living materials will be used as far as possible for study in the laboratory. Mr. Dobrovolny.

Prereq.: One year's work in biology and permission of the instructor. 2 lec.; 2 lab.; 4 cr.

57-58. Laboratory Technique. A general laboratory course in methods used in preparation of zoölogical material; microscopic slides, mounting embryos, making serial sections, etc. Will be adapted to individual needs as far as possible. Mr. Dobrovolny.

Prereq.: Permission of the instructor. 1 lec.; 2 lab.; 3 cr.

59-60. Advanced Physiology. Human physiology with special emphasis on nutrition, circulation, respiration, excretion and secretion. Lectures, assigned topics and laboratory experiments. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 3 cr. (3 lec. or rec.; 1 lab.; 4 cr., by permission of the instructor.)

61-62. Heredity and Variation. A detailed study of the cell, including morphology, the chemical and physical nature of protoplasm, mitosis, meiosis, syngamy, and related phenomena leading up to the physical basis of inheritance and the study of Mendel's laws, the expression and interaction of the genes, linkage, sex and its inheritance, the inheritance of quantitative characters, and the types and causes of variations. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; not offered in 1943–44.)

63, 64. Neurology. A comparative study of the nervous systems of the lower animals and a detailed practical study of the morphology, physiology, and histology of the human nervous system. Mrs. Richardson.

Prereq.: Biology 1, 2 and one year of zoölogy. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; offered in 1943–44.)

71, 72. Biology and Taxonomy of the Vertebrates. The habits, habitat, life history, and economic importance of vertebrate animals with emphasis on identification. Field methods and technique will be considered. A basic course for students interested in fish and game management, for forestry students, and teachers of biology. Mr. Jackson and Mr. Warfel.

Prereq.: Permission of the instructor. 3 lec. or rec.; 1 lab.; 4 cr.

95. Limnology. The aquatic life of fresh water ponds and streams with special reference to economically important food and game fishes, adapted primarily for students who are interested in fish and game management, wild life conservation and in teaching of biology. Mr. Warfel.

Prereq.: Permission of the instructor. 1 conference; assigned laboratory work; 4 cr.

96. Problems of Conservation Research. Open to advanced students or those who show unusual promise in the field of research.

Problems in all phases of conservation work and specifically in applied chemistry, zoölogy, ecology, genetics, limnology and silviculture. Nature of problems to be determined by the background and interests of the individual student. Mr. Warfel.

Prereq.: Permission of the instructor. 1 conference; 2 lab.; 4 cr.

97, 98. Special Problems and Seminar. Seminar discussions on current zoölogical literature conducted each week. Advanced students may elect a special problem provided they present a detailed outline of the subject and can furnish adequate proof of their ability to carry it out with equipment available. Head of the department and members of the staff.

Prereq.: Permission of the instructor. Graduate or undergraduate credit. 1–4 cr.

SERVICE COURSES

48. General Zoölogy. The principles of animal life, with special emphasis on human anatomy and physiology; the general principles of physiology, embryology and genetics as applied to various forms of animals. Mr. Schaefer.

Required of sophomores in agriculture. Open only to students in agriculture. 3 lec.; 3 cr.

49. Genetics. The physical basis of inheritance; laws governing Mendelian inheritance, and their application to plant and animal breeding. Mrs. Richardson.

For agricultural students. 2 lec. or rec.; 2 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

Botany. See pages 116–117 and 214–215.

Business. See pages 148 and 229–232.

Dentistry. See Pre-Dental, page 142.

Design. See The Arts, pages 113 and 207–212.

Dramatics. See Arts 35 and English 5.

Drawing. See The Arts, page 209.

CHEMISTRY AND CHEMICAL ENGINEERING

Harold A. Iddles, *Professor;* Oswald T. Zimmerman, *Professor;* Melvin M. Smith, *Associate Professor;* James A. Funkhouser, *Associate Professor;* Albert F. Daggett, *Associate Professor;* Edward R. Atkinson, *Assistant Professor;* John L. Torgesen, *Assistant Professor;* Norman Bauer, *Assistant Professor;* C. Richard Morgan, *Assistant;* Robert E. Breen, *Graduate Assistant;* Howard L. Wilson, *Graduate Assistant;* Myron J. Rosen, *Graduate Assistant;* Peter J. Grabowski, *Graduate Assistant;* Rowland H. Mayor, *Graduate Assistant;* John E. Roberts, *Graduate Assistant.*

BREAKAGE. A breakage deposit is required in certain laboratory courses, from which the actual breakage is deducted. The deposit receipt must be presented to the instructor at the first class meeting.

1-2. GENERAL CHEMISTRY. A broad course in elementary chemistry with many lecture demonstrations and some laboratory practice. Topics of interest to the professional student and of general interest are presented. Messrs. Smith, Atkinson, Torgesen, and assistants.

Elective for liberal arts students. Required of freshmen in agriculture, and sophomores in home economics. 2 lec.; 1 rec.; 1 lab.; 4 cr. Deposit: One dollar for the year.

3-4. GENERAL CHEMISTRY. The fundamental laws and conceptions of chemistry, including a study of the non-metals and metals and their compounds. The theoretical principles are illustrated by many lecture demonstrations, and the applications of chemistry in the professions are explained. Messrs. Iddles, Smith, Funkhouser, and assistants.

Required of freshmen in technology, and of pre-medical and pre-dental students. Elective for students who plan to take further courses in the department of chemistry. Technology students will be sectioned on the basis of a placement examination taken during Freshman week. 2 lec.; 1 rec.; 1 lab.; 4 cr. Deposit: One dollar for the year.

6. INORGANIC CHEMISTRY. A continuation of Chemistry 3 covering the fundamental laws and conceptions of chemistry involved in a study of the non-metals and metals and their compounds. Facts and practical applications are given, and the principles are explained and illustrated by lecture demonstrations. Mr. Iddles, Mr. Smith and assistants.

Prereq.: Chemistry 3, Mathematics 5 or 15, and permission of instructor. Required of freshman majors in chemistry. 2 lec.; 1 rec.; 3 lab.; 6 cr. Deposit: continued from Chemistry 3.

7-8. GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. The fundamental laws and conceptions of chemistry including a study of the non-metals and metals and their compounds. In the latter part the fundamental theories of solutions are presented and the laboratory work consists of qualitative analysis using semi-micro technique. Mr. Morgan.

Required of pre-medical and pre-dental students. Chemistry 7—3 lec.; 1 rec.; 1 lab.; 5 cr.; Chemistry 8—3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the year.

11-12. SURVEY OF CHEMISTRY. Lectures and demonstrations on general chemistry, designed for the pursuit of chemistry as an element of general culture rather than as professional training, and for a knowledge of the spirit of a branch of science on which much of our present-day civilization is based. Textbook: Findlay, The Spirit of Chemistry. Mr. Iddles.

Elective for sophomore, junior and senior students. 3 lec.; 3 cr.

21. Semi-micro Qualitative Analysis. The fundamental theories of solutions and colloids as applied to the reactions of qualitative analysis. As a means of illustrating the theory, problem work is required. The laboratory work uses the semi-micro technique and provides ample experience in the analysis of simple and complex mixtures. Mr. Bauer and assistant.

Prereq.: Chemistry 4 or 6. This course required of sophomores in chemistry; not an elective course. 2 lec.; 2 lab.; 4 cr. Deposit: Five dollars for the semester.

22. Quantitative Analysis. The theory and laboratory technique of the more common determinations of gravimetric and volumetric analysis. Emphasis on the solution of problems. A comprehensive study of the more common analytical methods. Mr. Daggett and assistants.

Prereq.: Chemistry 21. Required of sophomores in chemistry; elective for others. 2 lec.; 3 lab.; 5 cr. Deposit: Five dollars for the semester.

25, 26. Introductory Quantitative and Qualitative Analysis. First semester: The theory, problems and technique involved in some of the common procedures in both gravimetric and volumetric quantitative methods. Second semester: The theory and problems of qualitative analysis. The laboratory work is conducted on a semi-micro scale and presents the special methods of technique involved. For pre-medical and pre-dental students, as a preparation for various sciences and as a preparation for secondary school teaching. Messrs. Daggett, Bauer, and assistants.

Prereq.: Chemistry 4 or 8. Elective to the limit of laboratory space. 1 lec.; 2 lab.; 3 cr. Deposit: Ten dollars for the year.

31. Stoichiometry and Technical Quantitative Analysis. The laboratory portion provides sufficient experience to develop the skill and special technique necessary for the analysis of alloys, gaseous, liquid and solid fuels, gas mixtures, oils and lubricants. The lectures interpret the results of technical analyses and their application to the calculation of heat and material balances in industrial processes. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; elective for others. 3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the semester.

47-48. Organic Chemistry. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with emphasis on class reactions and structural theory. Laboratory exercises in the preparation and purification of a selected number of organic compounds; also the use of group reactions for the identification of organic substances in a systematic scheme of qualitative organic analysis. Mr. Iddles.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; not an elective course. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

51. Organic Chemistry. An intensive review of the methods of preparation and reactions of the principal classes of organic compounds. The review also includes a consideration of important individual substances within each class. Emphasis is placed on the working of assigned problems. Mr. Atkinson.

Prereq.: Chemistry 48 or 54. Required of seniors in chemistry. 3 lec.; 3 cr.

53-54. Organic Chemistry. Lectures on the chief divisions of organic chemistry, aliphatic and aromatic, with the needs of the pre-professional student in mind. A more detailed consideration of carbohydrates and proteins follows. The laboratory technique of organic chemical methods as illustrated in the preparation and purification of typical organic compounds. Mr. Funkhouser.

Prereq.: Chemistry 3-4, and 26 when possible. Elective for liberal arts students. Required of junior pre-medical and pre-dental students. Chemistry 53 alone does not meet the pre-medical or pre-dental requirements; a grade of "Incomplete" will appear on the student's record following the completion of Chemistry 53, and the grade in the course will be filed upon completion of Chemistry 54. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

55, 56. Theoretical Problems of Modern Organic Chemistry. The principles underlying the behavior of organic compounds. A discussion of valence leads to a study of the electron theory of organic chemistry, and this is used as a basis for subsequent discussions of unsaturation, tautomerism, free radicals, color and chemical constitution (including an abbreviated treatment of dyestuffs), polymerization and molecular rearrangements. The latter part of the course includes a study of alicyclic compounds, the physical methods used in investigations of organic compounds, and an extensive study of stereoisomerism. The historical background is emphasized. Mr. Atkinson.

Prereq.: Chemistry 48 or 54. Chemistry 56 required of seniors in chemistry. 3 lec.; 3 cr. (Credit may be arranged.)

62. Advanced Methods of Quantitative Analysis. The theory and technique of special and recently developed methods of analysis such as colorimetry, turbidimetry, potentiometry and spectrography. Sufficient experience is obtained to allow the development of considerable skill in even the more complex methods. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry; elective for others. 2 lec.; 2 lab.; 4 cr. Deposit: Five dollars for the semester. (Credit may be arranged.)

71-72. Unit Processes. The important inorganic and organic industrial chemical processes from the point of view of the basic chemical reactions and physical operations involved. Mr. Zimmerman.

Prereq.: Chemistry 22. Required of juniors in chemical engineering and seniors in chemistry. 2 lec.; 2 cr.

74-75. Unit Operations. The theory and practice of the fundamental chemical engineering unit operations, including flow of fluids, flow of heat, evaporation, distillation, drying, filtration, gas absorption, extraction, humidification and air conditioning, crystallization, crushing and grinding, and size separation. Mr. Zimmerman.

Prereq.: Chemistry 71, 83. Required of students in chemical engineering. 3 lec.; 3 cr.

76. Chemical Engineering Economics. The economic factors involved in industrial chemical processes and the application of economic balances to the design and selection of chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lec.; 3 cr.

77. Unit Operations Laboratory. Experiments based upon the unit operations are performed on typical chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 74, 84. Required of seniors in chemical engineering. 3 lab.; 3 cr. Deposit: Five dollars for the semester.

78. Chemical Plant Design. The design and layout of chemical plants and equipment. The assigned problems are of a practical nature, such as the manufacture of some chemical product, and their solution will include the design or selection of all equipment and drawings of equipment, plant and layout. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lab.; 3 cr.

79. Chemical Engineering Thermodynamics. A study of the fundamental laws of energy and their application to chemical engineering problems. Mr. Zimmerman.

Prereq.: Chemistry 84 and Chemistry 74. Required of seniors in chemical engineering. 2 lec.; 1 rec.; 3 cr.

80. Chemical Engineering Project. Each student selects a research problem which he carries out independently under faculty supervision. Intensive study in both the library and the laboratory and a satisfactory thesis at the completion of the work are required. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 4 lab.; 5 cr. Deposit: Five dollars for the semester.

82. Pre-Medical and Pre-Dental Physical Chemistry. A brief review and survey of the more important fundamental topics of physical chemistry; thereafter, those topics of physical and theoretical chemistry which have application in the medical, biological, and agricultural sciences. Mr. Torgesen.

Prereq.: Chemistry 2, physics 2, 6, or 8, mathematics 6 or equivalent. 3 lec.; 3 cr.

83-84. Elementary Physical Chemistry. The properties of gases, liquids and solids; principles of thermodynamics and applications; solutions, ionic theory, chemical equilibria, thermochemistry, conductance and electromotive force; principles of kinetics and their application to reaction rates. The laboratory will include accurate measurements illustrating the principles studied in the lectures. Mr. Torgesen.

Prereq.: Chemistry 22, Mathematics 18, Physics 8. Required of juniors in chemistry and chemical engineering. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

85-86. Advanced Physical Chemistry. A complete review of elementary physical chemistry followed by a study of the structure and properties of matter. In the latter part of the course the subject matter will include radioactivity, atomic structure, crystal structure, and related topics. Mr. Bauer.

Prereq.: Chemistry 84 or equivalent. 3 lec.; 3 cr.

87-88. Chemical Literature and Seminar. Instruction in the use of the chemical library. Problems which require the use of all types of chemical literature, not only for locating specific factual material but also for the purpose of carrying out detailed searches on the laboratory and economic phases of typical chemical problems, are assigned. In the seminar individual student reports on recent topics of interest in chemistry are given. Mr. Atkinson.

Prereq.: Chemistry 62 and Chemistry 48. Required of seniors in chemistry. 1 lec.; 1 cr.

89-90. Thesis. A thesis covering the related background and experimental observations of the year's investigation in some selected subject is required. Members of the staff.

For seniors in chemistry who have completed Chemistry 48 and 62. 4 lab.; 4 cr. Deposit: Ten dollars for the year.

For courses primarily for graduate students, see catalog of the Graduate school.

CIVIL ENGINEERING

Edmond W. Bowler, *Professor;* Russell R. Skelton, *Associate Professor;* Charles O. Dawson,* *Assistant Professor;* Thomas W. Lambe, *Instructor.*

* On leave of absence.

2. SURVEYING. The theory and use of surveying instruments and methods, including measurement of angles, direction and distance, differential leveling, land surveying, note keeping, and calculations and plotting relating to traverses. Mr. Lambe.

Prereq.: Mathematics 5, 15 or Mathematics 2 carried in parallel. Required of freshmen in civil engineering. 1 rec.; 2 lab.; 3 cr.

3-4. SURVEYING. Theory and use of surveying instruments and methods on plane, precise and topographic surveys, including: the use and adjustment of tapes, transits, levels, and plane tables, topographic mapping, solution of miscellaneous problems in topographic surveying, highway and railway curves, observations and reduction of observations on the sun and Polaris for latitude, time, and direction, profile leveling, city surveying, base line measurements, triangulation, and mapping programs in the United States. Some time is spent in the practice of the execution of topographic symbols, and lettering. A topographic survey of a small area is completed in the field by the transit and stadia method and a map of the same area is plotted in the drafting room. A topographic map of a small area is also made by the plane table method. Mr. Lambe.

Prereq.: Civil Engineering 2. Required of sophomores in civil engineering. Civil Engineering 3: 3 rec.; 3 lab.; 6 cr. Civil Engineering 4: 1 rec.; 2 lab.; 3 cr.

6. ROUTE SURVEYING. Theory and practice relating to preliminary and final location surveys for highways, railways and pipe lines. Theory and problems in earthwork, the mass diagram, grade lines, vertical curves, cross sectioning and slope stakes. A field survey is made to demonstrate the fundamentals of location. Mr. Skelton.

Prereq.: Civil Engineering 4 either in parallel or as a prerequisite. Required of sophomores in civil engineering. 1 rec.; 2 lab.; 3 cr.

7-8. SURVEYING. The theory and use of surveying instruments and methods on plane and topographic surveys, including the measurement of angles, measurement of direction and distance, differential leveling, calculations relating to traverses, observations and reduction of observations on the sun and Polaris for direction. A topographic survey of a small area is made in the field and a topographic map of the same area is plotted in the drafting room. Mr. Lambe.

Prereq.: Mathematics 2, 6, 16 or 22. C.E. 7 required of sophomores in forestry and seniors in architecture. 2 lab.; 2 cr.

9, (9). SURVEYING. The theory and use of tape, level and transit in making plane surveys, computations and drafting exercises necessary to plot field notes, surveys for record, and the economics and use of surveys for all purposes. Mr. Lambe.

Prereq.: Mathematics 6 or 16. Required of sophomores in electrical and mechanical engineering. 1 rec.; 1 lab.; 2 cr.

15. Engineering Materials. Methods of manufacture, physical properties and the application of the various materials used in engineering works, including timber, steel, stone, brick, cement, concrete and bituminous materials. Laboratory experiments and reports on the testing of cements and concrete specimens. Mr. Skelton.

Prereq.: Geol. 7 and mechanical engineering 9 either in parallel or as a prerequisite. 2 rec.; 1 lab.; 3 cr.

23. Hydraulics. Fundamental principles of hydrostatics and hydrokinetics: fluid pressures, hydraulic gauges and meters, flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, and the dynamic action of jets and streams. Mr. Bowler.

Prereq.: Mechanical engineering 9. Required of seniors in electrical engineering. 3 rec.; 3 cr.

24. Hydraulics. Fundamental principles of hydrostatics and hydrokinetics: fluid pressure and fluid flow, hydraulic gauges and meters, fluid flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, the dynamic action of jets and streams, and the theory of tangential and reaction turbines. Mr. Bowler.

Prereq.: Mechanical engineering 7. Required of juniors in mechanical engineering. 3 rec.; 3 cr.

27-28. Theory of Structures. The graphical and analytical methods of determining reactions, moments and shears in beams, girders and trusses under fixed and moving loads and the stresses in various structures including simple, subdivided and multiple trusses, portals, viaducts, cantilevers and three-hinged arches. The computation of deflections and the application of the method of least work to statically indeterminate structures. Mr. Bowler.

Prereq.: Mathematics 18, and mechanical engineering 9 and 10 as prerequisites or in parallel. Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

38. Thesis. The student selects a subject of engineering, scientific or commercial interest for investigation or design and presents his results as a thesis in which equal emphasis is placed upon composition and accuracy of subject-matter. Conferences each week for discussion of progress and for guidance in study. Departmental standards for form of presentation are strictly followed. Mr. Bowler, Mr. Skelton, Mr. Lambe.

Prereq.: English 41. Required of seniors in civil engineering. 1 conference each week; 2 cr.

41, 42, 43, 44. Student Chapter of the American Society of Civil Engineers. Junior and senior students in civil engineering are required to join the student chapter of the American Society of Civil Engineers. In addition to its ordinary life under the guidance of student officers, the chapter meets once a week under the direction of an

instructor, when prepared addresses by the student members are presented. Mr. Bowler and Mr. Lambe.

Required of juniors and seniors in civil engineering. No credit.

52. Hydraulics. Principles of hydrostatics and hydrokinetics, including the laws governing static pressures, the flow of water through orifices, tubes, nozzles, weirs, pipe lines and open channels, the dynamic action of jets and streams and fluid flow in pipes. Laboratory exercises in hydraulic machinery and in stream gaging. Mr. Bowler.

Prereq.: Mathematics 18. Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

61. Highway Engineering and Transportation. The economics of location and design of highways and city streets; methods of construction, maintenance and specifications governing the various types of surfaces; administration and financing of highway systems; special emphasis on highway transportation. Field location and the complete design of a section of highway are included. Mr. Skelton.

Prereq.: Civil engineering 4, 6 and 15. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

62. Soil Mechanics and Foundations. The principles underlying the behavior of various soils when subjected to structural loads. Problems and methods encountered in foundation design and construction, building codes and legal aspects of foundation construction, also test borings and other underground exploration methods. In the laboratory tests are made on various soils for classification, grain size, permeability and consolidation. Reports and typical problems are included. Mr. Skelton.

Prereq.: Civil engineering 65. Required of seniors in civil engineering. 2 lec.; 1 lab.; 3 cr.

63-64. Hydraulic and Sanitary Engineering. Precipitation, water losses, run-off, drainage areas, stream flow, water power estimates, hydraulic turbines, dams and waterways; the sources, quantity, quality and sanitary aspects of public water supplies; the methods of purification and distributing systems; the theory and problems of sewerage, the principles governing the disposal of sewage and the various methods of sewage treatment. Computations, reports and problems of design are included. Mr. Bowler.

Prereq.: Civil engineering 52. Required of seniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

65. Structural Design. Theory and problems relating to the design of steel and timber structures. A steel girder and steel roof truss are completely designed and working drawings prepared. Individual parts of steel bridge trusses and buildings are studied and designed. Emphasis on economy of design, accuracy of results, clarity of vision and analytical thought. Mr. Skelton.

Prereq.: Civil engineering 28. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

66. Reinforced Concrete Structures. Theory and design of reinforced concrete structures, such as beams, slabs, columns, footings, retaining walls and small bridges. Problems relate to construction and to illustrations of the theory. Mr. Skelton.

Prereq.: Civil engineering 65. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

DAIRY HUSBANDRY

Kenneth S. Morrow, *Professor;* Herbert C. Moore, *Assistant Professor;* Harry A. Keener, *Instructor.*

6. Fundamentals of Dairying. A general survey of the dairy industry; the composition and properties of milk and other dairy products, dairy manufacturing processes, and market milk; the selection and judging of dairy cattle. Mr. Keener.

Required of sophomores in agriculture except those in animal husbandry and dairying. Paired with agronomy 4; one-half semester. 3 lec.; 1 lab.; 2 cr.

23. Dairy Cattle. Purebred dairy cattle; breed history; pedigrees; family lines and methods of outstanding breeders; the application of the principles of genetics to the improvement of dairy cattle; herd analysis. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

27. Butter and Cheese. (1) The secretion and the chemical and physical properties of milk; pasteurization; cream ripening; starters; churning; organization and operation of factories. (2) The manufacturing and marketing of more important types of cheese. Mr. Moore.

Required of juniors in dairy husbandry. 1 lec.; 1 lab.; 2 cr.

29. Domestic Dairying. Nutritive value of milk; market milk, modified milk, certified milk, condensed milk, milk powder, fermented milk, butter, cheese, and ice cream. Laboratory exercises in the manufacture of dairy products. Mr. Moore.

Elective for juniors and seniors in home economics and liberal arts curriculums. 2 lec.; 1 lab.; 3 cr.

30. Dairy Bacteriology. The application of bacteriological principles to the production and processing of milk and other dairy products, involving methods of entrance of microörganisms, effects of their growth, and methods for their control. Mr. Moore.

Prereq.: Bacteriology 1. Required of juniors in dairy husbandry. 2 lec.; 2 lab.; 4 cr.

33, 34. Dairy Cattle and Dairy Products Judging. (1) Comparative judging of dairy cattle, using animals in the college herd and in near-by herds. (2) The various standards and grades of dairy products with practice in judging milk, butter, cheese, and ice cream.

Cattle judging is given first half of fall semester and last half of spring semester; products judging alternates with this schedule. Students interested in competing for judging teams should elect this course. Mr. Morrow, Mr. Moore.

Required of juniors in dairy husbandry. 1 lab.; 1 cr.

60. Dairy Seminar. Recent experiment station and other literature covering the field of dairying. Practice in looking up literature and in the preparation of oral and written reports. Mr. Morrow.

Required of seniors in dairy husbandry. Elective for other students. 1 lec.; 2 cr.

62. Advanced Dairy Science. Basic data, fundamental observations, and discussions of research contributing to the present status of the dairy industry. Mr. Moore.

Required of seniors in dairy husbandry. Elective for other students who have adequate preparation in chemistry and bacteriology. 2 lec.; 2 cr.

64. Milk Production. Feeding and management of dairy animals; calf feeding; raising young stock; feeding for economical milk production. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

65. Market Milk. The producing, handling, and distributing of market and certified milk; dairy farm inspection; control of milk supply. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

66. Ice Cream. The making, handling and marketing of ice cream and ices. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

ECONOMICS AND BUSINESS ADMINISTRATION

Harry W. Smith, *Professor;* Arthur W. Johnson, *Associate Professor;* Norman Alexander, *Associate Professor;* Ruth J. Woodruff, *Associate Professor;* John D. Hauslein, *Assistant Professor;* Carroll M. Degler, *Assistant Professor;* Doris E. Tyrrell, *Assistant Professor;* Olga Conon, *Instructor;* Edith M. McKenzie, *Instructor.*

ECONOMICS AND BUSINESS ADMINISTRATION

Economics

1-2. Principles of Economics. The fundamental principles which explain the organization and operation of the economic system. Mr. Degler, Miss Woodruff.

Required of business students. Majors in economics are required to take this course. Elective for other sophomores, juniors and seniors. 3 lec. or rec.; 3 cr.

3. Economic and Commercial Development of the United States. Mr. Smith, Miss Woodruff.

Required of business students. Elective for sophomores. 3 lec. or rec.; 3 cr.

4. Economic and Commercial Geography. The development of the resources of the continents and the influence of physical environment on industrial and agricultural progress. Miss Woodruff.

Required of business students. Elective for sophomores. 3 lec. or rec.; 3 cr.

5. Economic and Commercial Development of Europe. Mr. Degler.

Elective for sophomores. 3 lec. or rec.; 3 cr. (Not given in 1943–44.)

(6), 6. Principles of Business. This course is intended to introduce the student to the organization and functioning of the several aspects of business as represented by organization; management; labor relations and personnel; marketing; pricing problems; financial administration; tax problems; reorganization and consolidation. Mr. Degler.

Elective for all students. 3 lec. or rec.; 3 cr.
This course cannot be used to satisfy major requirements.

10. Transportation. Development and organization of transportation agencies. Mr. Smith.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr.

21-22. Commercial Law. The law of contracts, agency, sales, negotiable instruments, partnerships and corporations. Mr. Alexander.

Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

24. Marketing. The economics of the marketing functions, agencies, and special problems of marketing. Mr. Degler.

Prereq.: Open to students who have completed or are enrolled in Economics 2. Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

47, 48. Economic History of the Working Classes. Mr. Smith.

1 lec. or rec.; 1 cr. (Not offered in 1943–44.)

51. Labor Problems. Historical background and present status of labor organizations and problems. Mr. Smith.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr.

52. Public Finance. Theory and practice of public expenditures and collection of public revenues; problems and policies in financial administration, national, state, and local; taxation problems in the state of New Hampshire. Mr. Smith.

Prereq.: 12 semester credits in economics and consent of the instructor. 3 lec. or rec.; 3 cr.

53. Money and Banking. Theory and practice of money and banking. Mr. Degler.

Prereq.: Economics 2. Required of business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

54. Advanced Money and Banking. Advanced monetary theory and some of the more practical aspects of modern banking.

Prereq.: A satisfactory average in Economics 53. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

55. Corporations. Development and forms of business organization and combination. Mr. Degler.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

56. Corporation Finance. Methods of financing corporate enterprise. Mr. Degler.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

57, (57). Economics of War. This course is intended to acquaint the student with economic problems and their treatment peculiar to conditions of total war. Attention is given to such problems as: economic causes of war; nature of total war; manpower and resource control; price system and price control; labor problems in war; control of production and consumption under war conditions; international economic relations; war financing; postwar economic reconstruction. Mr. Degler.

Prerequisite: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

59, 60. Seminar in Current Economic Problems. Mr. Smith.

Elective for seniors majoring in economics who have attained a satisfactory average in the department. Recitations and reports; 3 cr.

61. Public Regulation of Business. The federal control of business organizations and their activities with special reference to wartime regulations affecting business. Mr. Alexander.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

63. International Economics. Theory of international trade, foreign exchange, balances of international payments, tariffs and protection; the economic aspects of international relations, with particular reference to modern problems and policies.

Prereq.: Economics 2 and 4. 3 lec. or rec.; 3 cr.

The departments of economics and business administration, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics. (*See page 307.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61 and 62.

For courses primarily for graduate students, see the catalog of the Graduate school.

Accounting

Note.—Students who have completed two or more years of bookkeeping in preparatory school will be permitted to register for intermediate accounting (3-4) upon passing an examination covering the material of elementary accounting (1-2).
Schedule the following courses as Acct. 1, etc.

1-2. Elementary Accounting. Basic principles and theory of accounting, with extensive practice in accounting problems of the single proprietorship and partnership types of business organization. Mr. Hauslein.

Required of business sophomores. Elective for other sophomores, juniors and seniors. 2 lec. or rec.; 2 lab.; 4 cr.

3-4. Intermediate Accounting. Continuing work in partnerships; a comprehensive study of corporation accounting; extensive practice work in handling problems of corporation accounting. Mr. Johnson.

Required of business juniors. Elective for students who have completed accounting 2 or its equivalent. See note above. 2 lec. or rec.; 2 lab.; 4 cr.

5-6. Advanced Accounting. Advanced theory of accounting and extensive practice in solving problems involved; the federal income tax law and the accounting procedure in connection therewith; practice in computing income tax returns. Mr. Johnson.

Elective for students who have completed accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

7-8. Cost Accounting. The relation of cost accounting to general accounting. The place of cost accounting in modern business. Types

of cost systems and their application to particular lines of business. Careful analysis of methods of computing costs. Effect of recent federal legislation on cost accounting. Mr. Johnson.

Elective for students who have completed accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

9-10. HOTEL ACCOUNTING. Theory and practice of keeping accounting and financial records for hotels. Mr. Johnson.

Prereq.: Accounting 1–2. Required of students in hotel administration. 2 lec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1943–44.)

SECRETARIAL STUDIES

Schedule the following courses as Sec. St. 1, etc.

1-2. SHORTHAND. Principles of Gregg shorthand with practice in transcribing from shorthand plates and class notes. Sec. St. 7-8 must either be taken in conjunction with this course or precede it. Miss McKenzie.

Required of secretarial students. 5 rec.; 3 cr.

3-4. ADVANCED SHORTHAND. A review of fundamental principles, the building of shorthand vocabulary, practice in taking dictation at increasing rates of speed, and (in conjunction with Sec. St. 9-10) practice in developing skill and speed in transcription. Miss Tyrrell.

Prereq.: Sec. St. 2, or the equivalent. Required of secretarial students. 5 rec.; 3 cr.

5, (5). PERSONAL USE TYPEWRITING. Practice in acquiring correct typing techniques, arranging outlines, notes, themes, bibliographies, and simple tabulations. Open to any student who does not know how to typewrite. Miss Conon.

5 lab.; 1 cr.

27. TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. This course is to be taken instead of Sec. St. 7 by secretarial students who have had Sec. St. 5 or the equivalent. Miss Conon and Miss McKenzie.

Required of secretarial students who have had Sec. St. 5 or the equivalent. 5 lab.; 1 cr.

7-8. TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations and simple manuscripts. Miss Conon and Miss McKenzie.

Required of secretarial students. 5 lab.; 2 cr.

9-10. ADVANCED TYPEWRITING. Practice in tabulating and in writing business letters, legal papers, and various business forms; and (in conjunction with Sec. St. 3-4) practice in transcribing shorthand notes. Miss Tyrrell.

Prereq.: Sec. St. 8, or the equivalent. Required of secretarial students. 5 lab.; 2 cr.

11. Filing. Various alphabetic, numeric, and geographic subject-matter systems of correspondence filing; cross reference; follow-up methods; filing supplies and equipment; practice in filing. Miss Conon.

Prereq.: Sec. St. 8. Required of secretarial students. 3 rec. or lec.; 2 cr.

13. Office Machines. Duplicating methods; practice in typing master copies and stencils, and in operating a gelatin duplicator, a mimeograph, and a mimeoscope; practice in machine transcription; and an introduction to adding and calculating machines. Miss Conon.

Prereq.: Sec. St. 8. Required of secretarial students. 5 lab.; 2 cr.

17-18. Secretarial Office Procedure and Practice. First semester, discussion of secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Second semester, 144 hours of practice secretarial work in business offices. Miss Tyrrell.

This course must be taken in conjunction with Sec. St. 3-4 and Sec. St. 9-10, or following these courses. Required of four-year secretarial students. 3 rec.; 3 cr.

19-20. Secretarial Office Procedure. Discussion of secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Miss Tyrrell.

Required of two-year secretarial students; not open to four-year secretarial students except by permission of the instructor. 2 rec.; 2 cr.

22. Advanced Dictation. Speed building in dictation and transcription. Miss Tyrrell.

Prereq.: Sec. St. 4. 3 rec.; 3 cr.

23–24. Business Writing. Practice in writing various types of business letters and reports; proofreading; editing. Miss Tyrrell.

Required of secretarial students. 3 lec. or rec.; 3 cr.

EDUCATION

A. Monroe Stowe, *Professor;* Harlan M. Bisbee, *Associate Professor;* Adolph G. Ekdahl, *Associate Professor of Psychology;* Everett B. Sackett, *Associate Professor;* Herbert A. Carroll, *Associate Professor, Psychology;* Howard R. Jones, *Associate Professor;* I. N. Thut, *Assistant Professor,* Helen M. Jones, *Assistant, Psychology.*

Helen F. McLaughlin, *Professor* (*Home Economics-Education*); John S. Walsh, *Associate Professor* (*Latin-Education*); Carl Lundholm,

Associate Professor (Physical Education); MARGARET R. HOBAN, *Assistant Professor (Physical Education)*; HARRY D. BERG, *Assistant Professor (History-Education)*; BJÖRNAR BERGETHON, *Associate Professor (Music-Education)*;* JOHN A. FLOYD, *Assistant Professor (French-Education)*; HAROLD I. LEAVITT, *Assistant Professor (General Science)*; †EARL H. LITTLE, *(Agriculture-Education)*; ROBERT H. GRANT, *Assistant Professor (English-Education)*; SHELBY A. MITCHAM, *Assistant Professor (Home Economics-Education)*; PAUL E. SCHAEFER, *Assistant Professor (Biology-Education)*; DONALD M. PERKINS, *Instructor (Mathematics-Education)*.

COURSES IN EDUCATION

42. PSYCHOLOGICAL PRINCIPLES OF SECONDARY EDUCATION. The purpose of this second semester course in educational psychology is to help students acquire an appreciative understanding of adolescents and their educational needs and of the most effective ways of meeting those needs. Mr. Jones, Mr. Bisbee.

Prereq.: Psychology 11 (formerly education 11) or 31. Open to sophomores. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

45, (45). NEW HAMPSHIRE STATE PROGRAM OF STUDIES AND SCHOOL LAW. The aims and purposes, the plan of organization and administration of the secondary school as outlined in the New Hampshire state program of studies and school law. Mr. Bisbee.

Open to juniors and seniors. Preparatory for the state examinations in secondary program and in school law. 2 rec.; 2 cr.

51-52. SOCIAL PRINCIPLES OF SECONDARY EDUCATION. The educationally significant aspects and needs of modern democratic society. The organization, functions, curriculums and outstanding problems of American institutions of secondary education. Mr. Stowe.

Prereq.: Education 42. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

61, (61). PRINCIPLES AND PROBLEMS OF TEACHING IN THE SECONDARY SCHOOL. (1) Secondary school objectives and the objectives in the teaching of secondary school subjects; (2) principles of teaching and of directing learning incorporated in teaching which meets the needs of high school students and attains the objectives of the secondary school; (3) secondary school tests and the ways in which teachers are endeavoring to ascertain the extent to which their objectives are being attained; (4) class management, the purpose of which is to insure conditions favorable to the attainment of the objectives of the secondary school. Mr. Thut.

* On leave of absence.
† Representing the state department of education in the administration of the Smith-Hughes Act.

Prereq.: Education 42. Required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

65. Educational Tests and Measurements. A study of the problems involved in objectively measuring personality traits, mental aptitudes and the results of learning, by means of standardized group tests. A survey of the best of such tests and an evaluation of them. Interpretations and applications of test results. Of special interest for students preparing to be teachers, social workers, school psychologists, clinicians, and personnel workers in business. Mr. Carroll.

Prereq.: Psychology 11 or 31. 3 lec.; 3 cr.

75. Character Education in the Schools. Environmental factors which exert an important influence upon pupils of adolescent and preadolescent age; the development of wholesome ideals, attitudes, habits, personality and character traits; direct and indirect methods of character development through school subjects, co-curricular and extra-curricular activities. Mr. Bisbee.

Open to seniors who have satisfactorily completed education 42. 2 rec.; 2 cr.

76. Philosophy of Education. The fundamental concepts and ultimate objectives of education, current educational doctrines and controversies, changes in educational procedures, historic background and philosophical implications. Mr. Bisbee.

Prereq.: Education 51-52. 3 rec.; 3 cr.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH SCHOOL SUBJECTS

* The following courses are devoted to a study of problems of objectives, selection and organization of subject-matter, teaching and testing techniques and classroom management in the teaching of the respective subjects. To be admitted into one of these courses the student must have completed with a grade of at least 75 the course in principles and problems of teaching in secondary schools (education 61) and in addition the courses in the subject and related subjects designated as prerequisites to the respective courses in this group. A student desiring to be considered for supervised teaching must complete with a grade of at least 75 one of these courses in the subject in which he hopes to do supervised teaching. The satisfactory completion of two of these courses is required of students completing the university teacher-preparation program.

Agriculture-Education (ag-ed) 92. Problems in the Teaching of High School Agriculture. Mr. Little.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students. 3 lec.; 3 cr.

* For details concerning prerequisites and nature of these courses, see descriptions given under respective subject-matter departments.

ART-EDUCATION (ART-ED) 91. PROBLEMS OF TEACHING ART IN ELEMENTARY SCHOOLS. (3 cr.) Mr. Thomas.

ART-EDUCATION (ART-ED) 92. PROBLEMS OF TEACHING ART IN SECONDARY SCHOOLS. (3 cr.) Mr. Thomas.

BIOLOGY-EDUCATION (BI-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL BIOLOGY. (3 cr.) Mr. Schaefer.

ENGLISH-EDUCATION (ENG-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL ENGLISH. (3 cr.) Mr. Grant.

FRENCH-EDUCATION (FR-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL FRENCH. (3 cr.) Mr. Floyd.

GENERAL SCIENCE-EDUCATION (GS-ED) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE (3 cr.) Mr. Leavitt.

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. (3 cr.) Mr. Berg.

HOME ECONOMICS-EDUCATION (HE-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. (3 cr.) Mrs. McLaughlin.

LATIN-EDUCATION (LAT-ED) 91, 92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL LATIN. (3 cr.) Mr. Walsh.

MATHEMATICS-EDUCATION (MATH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL MATHEMATICS. (3 cr.) Mr. Perkins.

MUSIC-EDUCATION (MU-ED) 91. PROBLEMS IN THE TEACHING OF ELEMENTARY SCHOOL MUSIC. (3 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 92. PROBLEMS IN THE TEACHING OF SECONDARY SCHOOL MUSIC. (3 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 95. THE TEACHING OF STRINGED INSTRUMENTS. (2 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 96. THE TEACHING OF WOODWIND INSTRUMENTS. (2 cr.) Mr. Bergethon.

MUSIC-EDUCATION (MU-ED) 97. THE TEACHING OF BRASS AND PERCUSSION INSTRUMENTS. (2 cr.) Mr. Bergethon.

PHYSICAL EDUCATION (P-E) 91. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. (4 cr.) Miss Hoban.

PSYCHOLOGY-EDUCATION (PSY-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL PSYCHOLOGY. (3 cr.) Mr. Stowe.

COURSES IN SUPERVISED TEACHING

This work is required in the teacher preparation program. It is open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the depart-

ment of education on or before November 15 of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in education: 42, 51–52, and 61, and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision. The applicant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

Students may be enrolled for from 6 to 14 credits of work in supervised teaching in the second semester of the academic year. Students registered in the College of Liberal Arts may count no more than 12 semester credits in supervised teaching toward the fulfillment of the major requirements in education.

EDUCATION-AGRICULTURE (AG-ED) 93. SUPERVISED TEACHING IN HIGH SCHOOL AGRICULTURE. Each senior in the agricultural teacher preparation curriculum will spend at least ten weeks as an apprentice teacher in some agricultural high school selected by the state commissioner of education and the professor of education at the University of New Hampshire. This work will be in charge of the regular teacher of agriculture in the high school, and will be supervised by the instructor in agricultural education at the University of New Hampshire.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students.

EDUCATION-ART (ED-ART) 94. SUPERVISED TEACHING IN SECONDARY SCHOOL ART. Prereq.: ART-ED 92.

EDUCATION-BIOLOGY (ED-BI) 93, 94. SUPERVISED TEACHING IN HIGH SCHOOL BIOLOGY. Prereq.: BI-ED 91.

EDUCATION-CHEMISTRY (ED-CH) 94. SUPERVISED TEACHING IN HIGH SCHOOL CHEMISTRY. Prereq.: CH-ED 91.

EDUCATION-CIVICS (ED-CIV) 94. SUPERVISED TEACHING IN HIGH SCHOOL CIVICS. Prereq.: HIST-ED 91.

EDUCATION-COMMERCE (ED-CS) 94. SUPERVISED TEACHING IN HIGH SCHOOL COMMERCIAL SUBJECTS.

EDUCATION-ECONOMICS (ED-ECON) 94. SUPERVISED TEACHING IN HIGH SCHOOL ECONOMICS. Prereq.: HIST.-ED 91

EDUCATION-ENGLISH (ED-ENG) 94. SUPERVISED TEACHING IN HIGH SCHOOL ENGLISH. Prereq.: ENG-ED 91.

EDUCATION-FRENCH (ED-FR) 94. SUPERVISED TEACHING IN HIGH SCHOOL FRENCH. Prereq.: FR-ED 91.

EDUCATION-GENERAL SCIENCE (ED-GS) 94. SUPERVISED TEACHING IN GENERAL SCIENCE. Prereq.: GS-ED 91.

Education-History (ed-hist) 94. Supervised Teaching in High School History. Prereq.: hist-ed 91.

Home Economics-Education (ed-he) 94. Supervised Teaching in High School Home Economics. Prereq.: he-ed 91.

Education-Industrial Arts (ed-ia) 94. Supervised Teaching in High School Industrial Arts.

Education-Latin (ed-lat) 94. Supervised Teaching in High School Latin.

Education-Mathematics (ed-math) 94. Supervised Teaching in High School Mathematics. Prereq.: math-ed 91.

Education-Music (ed-mu) 93. Supervised Teaching in Elementary School Music. Prereq.: mu-ed 91.

Education-Music (ed-mu) 94. Supervised Teaching in Secondary School Music. Prereq.: mu-ed 92.

Education-Physical Education (ed-pe) 93, (93). Directed Teaching in Physical Education.

Education-Physical Education (ed-pe) 94. Supervised Teaching of Physical Education in the Field.

Education-Physics (ed-ph) 94. Supervised Teaching in High School Physics. Prereq.: ph-ed 91.

Education-Psychology (ed-psy) 94. Supervised Teaching in High School Psychology. Prereq.: psy-ed 91.

Education-Sociology (ed-soc) 94. Supervised Teaching in High School Sociology. Prereq.: hist-ed 91.

courses in psychology

11, (11). Principles of Human Behavior. The purpose of this course is to offer opportunities to students to acquire such appreciative understanding of important principles of human behavior and mental hygiene as will be helpful to them in controlling their own conduct efficiently, in living more wholesomely, and in influencing the conduct of others more intelligently. Mr. Stowe, Mr. Carroll, Mr. Bisbee, Mr. Jones, and Miss Jones.

> Open the first semester only to sophomores and the second semester only to freshmen or sophomores. Open to others by permission of Mr. Stowe. Either this course or psychology 31 is required of students completing the university teacher-preparation program. 3 rec.; 3 cr.

31, (31). General Psychology. A systematic study of essential facts and principles, including sensation and perception, attention, emotion, memory, habit, problem solving and motivation. Emphasis on

the rôle of such activities in the individual's adjustment to everyday situations. Mr. Ekdahl.

Open to sophomores who have satisfactorily completed psychology 11, or with approval of instructor, and to juniors and seniors without prerequisites. 3 lec. or rec.; 3 cr.

33. Psychology for Students of Commerce. A study of the fundamental principles of psychology in a setting of direct application to personal and social problems met with in business. Illustrative materials will be drawn from various commercial fields, particularly from those of advertising and selling. Mr. Ekdahl.

Open to sophomores, juniors and seniors who have not completed psychology 31. 3 rec.; 3 cr.

34. Psychology of Advertising. (Not offered in 1943–44.)

36. Psychology of Personnel. The application of psychology to personnel management in business and industry. The use of intelligence, trade, and aptitude tests and interest questionnaires in employment. The construction of rating scales and their use in promotion. The development and maintenance of morale through efficiency methods, favorable conditions of work, and intelligent leadership. Mr. Ekdahl.

Prereq.: Psychology 31 or 33, or Psychology 11 and Education 42. 3 rec.; 3 cr.

51. Psychology of Childhood. The mental processes and reactions of the normal child from early infancy to adolescence studied in order to obtain a comprehensive understanding of the development of the personality of the child. The origin of language and the acquisition of habits of thought and action considered together with the development of proper balance of emotional behavior. Of interest to students preparing to be teachers, homemakers, social workers, nurses, school psychologists, and clinicians. Mr. Ekdahl.

Prereq.: Psychology 11 or 31. 3 rec.; 3 cr.

54. Psychopathology. The distortion of the psychological functions of perception, association, memory, judgment and thinking, as found in the maladjusted individual in need of institutional care. The symptoms distinguishing the various types of mental defectiveness and the more common forms of the psychoses and neuroses are presented to enable the student to recognize typical cases. Prophylaxis through the cultivation of healthful attitudes and activities in the home, school and community is emphasized. Mr. Ekdahl.

Prereq.: Psychology 31 or 11. 3 rec.; 3 cr.

56. The Psychology of the Exceptional Child. A study of individual differences in children with special emphasis on the subnormal,

the physically handicapped, and those with behavior problems. The children with special abilities or disabilities will also be considered together with the methods and techniques for the establishment of proper attitudes and healthful adjustment to the school and home environments. Mr. Ekdahl.

Prereq.: Psychology 31. Not open to students who have completed the course under the number Education 56. 3 rec.; 3 cr.

57. Experimental Psychology. Standard experiments on sensation and perception and a brief consideration of the psychophysical methods. Emphasis is placed on the training of the student in the proper techniques of psychological investigation. Mr. Ekdahl.

Prereq.: Psychology 31 or 11, or in conjunction with Psychology 31. 1 lec.; 2 lab.; 3 cr.

58. Psychology of Learning. The study of learning and memory. Actual learning curves will be constructed from data obtained through student participation in learning situations. The investigation of the activities of association, imagination, and problem solving. Consideration of the various theories of learning. The question of transfer of training. The application of psychological findings in the development of skills. Mr. Ekdahl.

Prereq.: Psychology 31 or 11. 3 cr.

66. Comparative Psychology. A survey of animal behavior from the one-celled organism up to and including the higher apes. Special emphasis will be given to the study of animal intelligence with opportunities for student participation in experiments on animal learning. Mr. Ekdahl.

Prereq.: One year of psychology. 3 lec. or rec.; 3 cr. (Not offered in 1943–44.)

68. Individual Mental Testing. Demonstrations and experience in the administration of individual intelligence tests. Major attention given to developing skill in the use of the Terman-Merrill Revision of the Binet-Simon Scales. Of special value to students preparing to be social workers, personnel workers, school psychologists, and clinicians. Mr. Carroll.

Prereq.: Psychology 11 or 31, or by permission of instructor. Not open to students who have credit for Psychology 53. 3 rec.; 3 cr.

81. Mental Hygiene. (Formerly Psych. 52.) A study of the ways and means of maintaining a normal mind. Attention is given, also, to the detection, diagnosis, and treatment of minor emotional adjustments, with special emphasis on the problems of college students. Mr. Carroll.

Prereq.: Psychology 11 or 31, or Sociology 2. Not open to students who have credit for Psychology 52. 3 rec.; 3 cr.

82. Clinical Problems. An examination of the organization and functions of the psychological clinic. Presentation of case studies of maladjusted individuals who require clinical attention but not necessarily institutional care. Mr. Carroll.

Prereq.: Psychology 81 and permission of the instructor. 3 cr.

97, 98. Seminar in Psychology. Mr. Ekdahl and Mr. Carroll.

Prereq.: Two years of psychology. Required of seniors majoring in psychology. 3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

ELECTRICAL ENGINEERING

Leon W. Hitchcock, *Professor;* Frederick D. Jackson, *Associate Professor;* William B. Nulsen, *Assistant Professor;* Colon H. Dunn, *Instructor.*

1-2. Electrical Engineering. An elementary study of electrical circuits and machinery. Mr. Dunn.

Required of sophomores in electrical engineering. E.E. 1: 1 rec.; 1 lab.; 2 cr. E.E. 2: 3 rec.; 1 lab.; 4 cr.

7. Electronics and Communication. Principles of electronic apparatus; vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in electrical communication and in industry. Mr. Jackson.

Prereq.: Electrical engineering 33, 36, 38, or 54. Required of seniors in electrical engineering. 2 rec.; 1 lab.; 3 cr.

12. Illumination. Principles of illumination and photometry, light sources, residential and commercial lighting, street lighting, display and advertising lighting; wiring methods and calculations: National Electrical Code rules. Mr. Nulsen.

Required of seniors in electrical engineering. Elective for students who have completed electrical engineering 33, 36, or 38. 2 rec.; 2 cr.

13. Electrical Problems. Problems involving magnetic circuits, direct and alternating current circuits and machinery, batteries and meters. Mr. Nulsen.

Required of juniors in electrical engineering. 2 rec.; 2 cr.

14. Electronic Tubes. Fundamental principles of electronics, including a study of diodes, triodes, tetrodes, pentodes and gas tubes. Mr. Jackson.

Required of juniors in electrical engineering. 2 rec.; 1 lab.; 3 cr.

15, 16, 17, 18. Student Branch of the American Institute of Electrical Engineers. A student organization conducted in accord-

ance with the by-laws of the institute with meetings given a place on the student's class schedule. Each student is required to present and discuss an approved subject. At times the meeting may take the form of a debate, an address by an outside lecturer or a motion picture of an instructive nature. Students in this course must become student members of the A.I.E.E. and must subscribe to a magazine selected by the department.

Required of juniors and seniors in electrical engineering. 1 rec.; no cr.

19, 20. THESIS. An original investigation offering opportunity for a better understanding of the fundamental principles and theory underlying electrical engineering practice and the design and operation of electrical equipment. Apparatus constructed as a part of a thesis becomes the property of the department. A statement of progress must be submitted at the conclusion of each scheduled period. A thesis may be discontinued at any time if there appears to be a lack of interest or ability, or for failure on the part of the student to report at the periods scheduled. Staff members.

Elective for seniors in electrical engineering. 3–5 lab.; 3–5 cr.

23-24. LABORATORY. Operation and test of direct and alternating current equipment; laboratory practice and report presentation. Mr. Nulsen.

Prereq.: Electrical engineering 2. Required of juniors in electrical engineering. 1 lab.; 2 cr.

25. LABORATORY. A continuation of electrical engineering 24. Mr. Nulsen.

Prereq.: Electrical engineering 24. Required of seniors in electrical engineering. 2 lab.; 4 cr.

31. CIRCUITS AND APPLIANCES. Electrical circuits and appliances; types of wiring; National Electrical Code requirements; fuses and circuit breakers; meters; motors; signal circuits and telephones. Mr. Dunn.

Required of juniors and seniors in Architecture in alternate years beginning in 1941–42. Required of juniors and seniors in Hotel Administration in alternate years beginning in 1942–43. 2 rec.; 1 lab.; 3 cr.

33. FUNDAMENTALS OF ELECTRICITY. Fundamentals of electric and magnetic circuits, storage batteries, direct and alternating current equipment, electronics. Mr. Nulsen.

Required of seniors in chemical engineering. 3 rec.; 1 lab.; 4 cr.

36. PRACTICAL ELECTRICITY. Direct and alternating current circuits, wiring for light and power, generation of electric power, motors, transformers, controlling devices. Mr. Dunn.

Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

37-38. Electrical Machinery. Direct and alternating current circuits, theory and characteristics of electric motors and generators, starting and control equipment. Mr. Jackson and Mr. Dunn.

Required of juniors in mechanical engineering. 3 rec.; 1 lab.; 4 cr.

42. Principles and Applications of Electron Tubes. Vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in industry. Mr. Jackson.

Prereq.: Electrical engineering 33, 36, or 37. Elective for students not registered in the electrical engineering curriculum. 3 rec.; or 2 rec. and 1 lab.; 3 cr.

53-54. Electrical Engineering. Direct current generators, direct current motors, alternating current circuits, alternators and transformers. Mr. Nulsen and Mr. Jackson.

Prereq.: Physics 8, mathematics 18 and electrical engineering 2. Required of juniors in electrical engineering. 3 rec.; 3 cr.

55. Electrical Engineering. A continuation of electrical engineering 54. Induction motors, regulators, synchronous motors, converters and rectifiers; transmission line regulation, efficiency, insulation, lightning protection, sag and tension, etc. Mr. Dunn.

Prereq.: Electrical engineering 54. Required of seniors in electrical engineering. 3 rec.; 3 cr.

58. Radio and Wire Communication. Radio frequency amplifiers and oscillators and the principles of radiation. Principles of basic telephone apparatus and circuits. A detailed study of telephone transmission including inductive interference, equivalent networks, the infinite transmission line, the determination of line and cable characteristics, repeaters, filters, measurement of transmission characteristics. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for seniors in electrical engineering. 3 rec.; 1 lab.; 4 cr.

60. Advanced Circuit Theory. Application of mathematics to the solution of electrical circuit problems, including the use of differential equations, Heaviside's operators, and derivation of fundamental formulas and constants. Mr. Nulsen.

Prereq.: Electrical engineering 55. Elective for selected seniors in electrical engineering. 3 rec.; 1 lab.; 4 cr.

76. Laboratory. Advanced laboratory testing and special problems. The student works on problems of his own selection which have been outlined by him and have received approval. This may be in the form of a semester thesis, or a series of original experiments. Mr. Nulsen.

Prereq.: Electrical engineering 25. Elective for selected seniors in electrical engineering. 4 lab.; 4 cr.

78. Advanced Electronics Laboratory. Special radio problems, electron tube applications of a research nature, or studies and applications of audio frequency amplifier systems. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for technology seniors with permission of the department. Lab. and conferences; 4 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

ENGLISH

Harold H. Scudder, *Professor;* Alfred E. Richards, *Professor;* William G. Hennessy, *Associate Professor;* Lucinda P. Smith, *Associate Professor;* Carroll S. Towle, *Associate Professor;* Edmund A. Cortez, *Assistant Professor;* Paul S. Schoedinger,* *Assistant Professor;* Robert G. Webster, *Assistant Professor;* Thomas H. McGrail,* *Assistant Professor;* Sylvester H. Bingham, *Assistant Professor;* Robert H. Grant, *Assistant Professor;* G. Harris Daggett, *Assistant Professor;* Ray E. Keesey, *Instructor;* Irene Gadbois, *Instructor;* Marie A. Donahue, *Instructor;* Jeanie Begg, *Instructor.*

The courses in the department of English are open to students as follows:

Courses primarily open to freshmen: English 1, 3, 4, 43, 44, 45, 46; 6; (5).

Courses primarily open to sophomores: English 5, (5); 7, 8; 10; 11, 12; 14; 17, 18; 19; 20; 23, 24; 25, 26; 28; 32; 34; 35, (35); 36; 39, (39); 40.

Courses primarily open to juniors: All the preceding and the following: English 37, 38; 52; 53, 54; 55; 56; 57; 59; 61, 62; 63, 64; 65, 66.

Courses primarily open to seniors: All the preceding and the following: English 67, 68; 41, (41); 91.

1. Elementary Written and Oral English. Designed to meet the needs of each student in writing and in speech, this course will vary in content for each individual. All freshmen will be examined during Freshman week in this subject, and those whose attainments are found to be satisfactory will be released from instruction at once. Others will be grouped for individual instruction, and will be released individually from time to time as soon as their work is found to be satisfactory. Anyone may be recalled and reassigned to an instruction group at any time in his four years in college upon report of any member of the faculty that the student's work in English is deficient. Besides written English, this subject covers correction for all freshmen found to be defective in speech. This is a non-credit course for students entering after May 15, 1943, but all students are required to meet the requirements of this course. Mr. Webster, and a special staff.

* On leave of absence.

Conference schedules will be arranged by instructors. Members of upper classes may enroll if they desire, for assistance in writing or for speech correction. Apply to Mr. Webster.

3, 4. SURVEY OF ENGLISH LITERATURE. A general survey of English literature from its beginnings to the year 1900. Lectures and recitations. Mr. Daggett.

Open to all students. 3 lec. or rec.; 3 cr.
This course cannot be used to satisfy major requirements.

*5, (5). PLAY PRODUCTION. This is not an elective, but a laboratory course in the public presentation of notable plays. Members of the course are elected by competitive trial, and credit is given both for acting and stage management. Credit is also given (but not in English) for technical assistance. (See Arts 35.) Mr. Hennessy.

Open to all students except freshmen in the first semester.
½ to 3 cr.
This course cannot be used to satisfy major requirements.

*6. VARSITY DEBATING. Designed to give experience in public discussion and debate. Debates will be arranged with other college teams. Mr. Keesey.

Open to all students by permission of the instructor. No student may receive more than six credits in this course during his entire four years. 1–6 semester credits.
This course cannot be used to satisfy major requirements.

43, (43), 44, (44). READING FOR THOUGHT. Analysis of the thought and structure of three forms of writing: first semester: exposition; second semester: description and narration. Mr. Bingham.

Elective for all freshmen. Open to others upon permission of instructor. 3 lec. or rec.; 3 cr.

45, 46. ENGLISH FOR ENGINEERS. This course is built around the special interests of engineers, and will include (1) a study of the American way of life through the reading of biographies of famous scientists, essays, short stories, plays, and poetry; (2) the written and oral expression of the ideas suggested by the reading. Mrs. Smith, Mr. Richards, Mr. Grant, Miss Gadbois, Miss Donahue.

Required of freshmen in the College of Technology. Open to others on permission of instructor. 3 lec. or rec.; 3 cr.
This course cannot be used to satisfy major requirements.

7, 8. ADVANCED COMPOSITION. Study and practice of writing brief impressions, essays, sketches, and narratives. Collateral readings; weekly conferences. English 7 should be taken before English 8, but the instructor will consider special cases. Mr. Towle.

Elective for sophomores, juniors, and seniors if not enrolled in English 1. 3 lec. or rec.; 3 cr.

* Does not meet Liberal Arts English requirement. See pages 133, 136.

*9, 10. News Writing. A practical study of the preparation of articles for newspapers and magazines. It is for all whose vocations will demand frequent writing for publication, and it is a preparation in part for those who intend to take up newspaper work after graduation. It does not attempt to cover the entire field of journalism, but it surveys briefly the social role and responsibilities of the newspaper and instructs the student in the duties of a reporter and affords constant practice in the writing of news stories. Miss Begg.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

11, 12. Survey of American Literature. Lectures and extensive outside reading. Mr. Scudder.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

14. Mediaeval and Elizabethan Drama. A survey of the English drama, exclusive of Shakespeare, from its beginnings to the closing of the theatres (1642). Mr. Richards.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

17-18. English Literature in the Seventeenth Century. Poetry and prose from Shakespeare and Bacon to Swift and Pope, omitting the drama and the works of Milton. The poetry of John Donne and his school; of Jonson, Herrick and the "Cavaliers"; of Denham, Waller and Dryden; of the followers of Spenser, etc. The prose of such writers as Izaak Walton, Bunyan, Sir Thomas Browne, Fuller, Taylor, and John Dryden. One hour of the week will be devoted to round-table discussion in small groups. Mr. Towle.

Elective for sophomores, juniors, and seniors. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1943–44.)

*19. English Grammar. The fundamentals of English grammar in order to provide an understanding of the language from a structural point of view. A thorough drill in the rules and classifications. Mrs. Smith.

Required for those who take English-education 91. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

20. Pope and His Age. The literature of the first half of the eighteenth century, with special reference to Pope, Swift, Addison, and Steele. Mr. Schoedinger.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

23-24. Victorian Prose. Prose of the nineteenth century. Particular attention is given during the first semester to the work of Cole-

* Does not meet Liberal Arts English requirement. See pages 133, 136.

ridge, Lamb, Carlyle, Hazlitt, Newman, and Matthew Arnold; in the second semester to the work of John Ruskin as writer, art critic, and social reformer. Mr. Richards and Mr. Hennessy.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

25-26. Victorian Poetry. English poetry from 1830 to 1900, with special reference to Tennyson and Browning. Mr. Schoedinger.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

28. The Bible as Literature. A study of the various literary types found in the Bible, and a survey of the influence of the Bible on English literature. Mr. Richards.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

32. Modern British Poetry. A study of British poetry written since 1900. Mr. Towle.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

34. Modern American Poetry. A study of American poetry written since 1900. Mr. Towle.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

*35, (35). Public Speaking. Practice in the use of time, change in pitch, emphasis, and inflection of voice; drills in articulation and pronunciation; exercises in posture and poise; extemporaneous speaking; a foundation course for prospective business men and teachers. Mr. Cortez and Mr. Keesey.

Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

36. Oral Reading. The art of reading from the page; expressive reading of lyrics and other types of literature; platform reading for entertainment; choric speaking. Students must secure permission of the instructor before enrolling for this course. Mr. Cortez.

Prereq.: English 35 or its equivalent. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr. (Offered in 1943–44.)

*37-38. Discussion and Debate. First semester: The proposition and its main issues; sources and tests of evidence; construction of the argumentative brief; principal laws of reasoning; principal fallacies of reasoning; practice debates. Second semester: Application and evaluation of principles of problem-solving in groups; forms of discussion and debate; parliamentary procedure. Subjects for research and debate will be selected from current events of state, national, and international importance. Mr. Keesey.

* Does not meet Liberal Arts English requirement. See pages 133, 136.

Prereq.: English 35 or its equivalent. Elective for juniors and seniors (and for sophomores by permission of the instructor). 3 rec.; 3 cr.

*39, (39). RADIO SPEAKING. Practice in presenting readings, sketches and prepared speeches, and in radio announcing; analysis of radio programs; elementary practice in the preparation and delivery of radio continuity. Outstanding students will be given opportunity to participate in broadcasts. Mr. Cortez.

Prereq.: Permission of the instructor. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

*40. STAGE DIRECTION. A laboratory course in the fundamentals of acting, stage direction, and allied phases of play production. Designed to fit the needs of prospective teachers, particularly teachers of English. Mr. Hennessy.

Prereq.: The permission of the instructor. Elective for sophomores, juniors, and seniors. 3 lab.; 3 cr.

52. INTRODUCTION TO DRAMA. A comprehensive survey of dramatic literature from the Greek drama to the present. Mr. Hennessy.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

53-54. SHAKESPEARE'S PLAYS. A study of the major histories, comedies, and tragedies. Shakespeare is interpreted as poet and as dramatist. Mr. Hennessy.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr.

55. MILTON. Milton's minor poetry and the *Paradise Lost.* Consideration of the social, political and religious history of Milton's day. Mr. Richards.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Given in alternate years; offered in 1943–44.)

56. JOHNSON AND HIS CIRCLE. Boswell, Johnson and their time. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

57. THE ENGLISH NOVEL IN THE EIGHTEENTH CENTURY. The novel from Defoe through the Gothic Romance. Lectures and outside reading. Mr. Schoedinger.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

59. THE ENGLISH NOVEL IN THE NINETEENTH CENTURY. The novel from Jane Austen to Thomas Hardy. Lectures, recitations, and reading. Mr. Scudder.

* Does not meet Liberal Arts English requirement. See pages 133, 136.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

61-62. THE ENGLISH ROMANTIC WRITERS. The major writers of the early nineteenth century, such as Wordsworth, Coleridge, Byron, Lamb, Shelley, Hazlitt and Keats. Readings from the work of many minor writers, especially those of the late eighteenth century. One hour of the week devoted to round-table discussion with small groups. Mr. Towle.

Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr.

63, 64. ADVANCED AMERICAN LITERATURE. A series of studies in special fields, the subjects to be announced. In 1943–44 the subjects are: American Novel, and American Poetry of the 19th Century. Mr. Daggett.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr.

65-66. WRITING AS AN ART. The study and practice of forms of writing through an examination of the history of literary criticism. Reading of famous critical essays and of many contemporary opinions, correlated with practice writing of various types. Each student is allowed to spend much of his time with the type he finds most congenial. Collateral readings, with frequent class discussions and conferences. Mr. Towle.

Prereq.: English 7. Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

67-68. EARLY ENGLISH AND CHAUCER. Chaucer's life and times, and a reading of most of his poetry. First semester: Old and Middle English grammar as an introduction to the language of Chaucer and a portion of *The Canterbury Tales*. Second semester: *Troilus and Cressida*, and *The Canterbury Tales*. Mr. Richards.

Elective for seniors and graduate students. 3 lec. or rec.; 3 cr.

SERVICE COURSES

*41, (41). EXPOSITORY WRITING. Practice in the writing of reports and other papers pertaining to technical subjects; recommendation reports, progress reports, information reports; term papers or short theses; business letters of various types, such as letters of application, of complaint, and of sales. Mr. Webster.

Required of seniors in civil, electrical, and mechanical engineering, and of seniors in architecture and agriculture. 2 lec.; 2 cr.

*ENGLISH-EDUCATION (ENG-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL ENGLISH. The selection and organization of subject-

* Does not meet Liberal Arts English requirement. See pages 133, 136.

matter, the most efficient methods of presenting this material, and the problems which arise within the wide field of the teaching of high school English. Mr. Grant.

Prereq.: Three years of English courses approved by the head of the department, and a demonstration of proficiency in English grammar, either by the satisfactory completion of English 19, or by examination. Recommended for all students who plan to teach English in secondary schools. Elective for students majoring in language, history, or education. 2 lec.; 1 lab.; 3 cr.

BUSINESS WRITING. A course in business writing is offered by the department of Economics and Business Administration and will be found listed in the courses offered by that department as, Secretarial Studies, 23, 24.

For courses primarily for graduate students, see the catalog of the Graduate school.

ENTOMOLOGY

WALTER C. O'KANE, *Professor;* JAMES G. CONKLIN, *Assistant Professor.*

NOTE.—Work in the department of entomology is largely individualized. So far as possible each student is permitted to choose the topics to which he will give special attention. This applies to each course offered by the department. Reference books are issued from the department library at any time. Lecture periods are occupied largely with discussion, in which students participate.

6. PRINCIPLES OF ECONOMIC ENTOMOLOGY. The relation of the structure and classification of insects to methods of insect control. The preparation and application of insecticides. Studies of the life history and control of insect pests. Mr. O'Kane, Mr. Conklin.

Required of freshmen in agriculture. Paired with agronomy 2; one half-semester. 3 lec.; 1 lab.; 2 cr.

51. INSECTS OF ORCHARD AND GARDEN. The application of methods of insect control of typical injurious species. Life histories and habits of important insect pests of orchard, garden and certain field crops. Adapted especially for students in horticulture and in general agriculture. Mr. Conklin.

Prereq.: Entomology 6. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; offered in 1943–44.)

53. INSECTS OF DOMESTIC ANIMALS. The insect enemies of domestic livestock; the life histories, habits and means of control. Adapted especially for students in animal husbandry. Mr. Conklin.

Prereq.: Entomology 6. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; not offered in 1943–44.)

54. Medical Entomology. Insects and arachnids in relation to public health. The more important disease carriers, their biologies, and means of control. Adapted especially for students interested in public health, medicine, or the teaching of biology. Mr. O'Kane, Mr. Conklin.

Prereq.: Permission of the instructor. 2 lec.; 1 lab.; 3 cr.

56. Forest Insects. The life histories and habits of the more destructive forest insects and means of their control. Adapted especially for students in forestry. Mr. Conklin.

Prereq.: Entomology 6. Recommended for juniors in forestry. Elective for others. 1 lec.; 1 lab.; 2 cr.

57-58. Advanced Entomology. The anatomy and physiology of insects. The orders and families of insects. Mr. Conklin.

Open to students only by permission of the head of the department. Required of students specializing in entomology. 2 lec.; 2 lab.; 4 cr.

59-60. Advanced Economic Entomology. Problems involved in applied entomology. The literature of economic entomology. Investigational methods. Practice in arranging projects. Studies in the specialized phases of entomology. Mr. O'Kane, Mr. Conklin.

Open to students only by permission of head of department. Required of students specializing in entomology. Hours and credits to be arranged.

For courses primarily for graduate students see catalog of the Graduate school.

FINE ARTS

(See The Arts, pages 113 and 207–212.)

FORESTRY

Clark L. Stevens, *Professor;* Lewis C. Swain, *Assistant Professor;* William A. Medesy,* *Instructor;* William A. Johnson, *Assistant.*

1. Management of Farm Woodlands. Forestry principles as applied to the orderly handling of farm woodlots. Mr. Swain.

Required of sophomores in agriculture except foresters. Paired with poultry husbandry 5; one-half semester. 3 lec.; 1 lab.; 2 cr.

25, 26. Tree and Wood Identification. The characteristics of our native tree species, and the identification of trees in the field and from specimens. Additional practice in identifying northern species is given during summer camp. The uses of lumber, physical properties and identification of the commercially important woods. Personal ownership of a hand lens is required. Mr. Stevens, Mr. Swain.

Required of freshmen in forestry, elective for others. 2 lec.; 1 lab.; 3 cr.

* On leave of absence.

27-28. Forest Mensuration. Practice in forest mapping; measurement of forest products; timber cruising; and studies of growth and yield of the commercial tree species of New England. The course is continued during summer camp. Personal ownership of a box compass is required. Mr. Johnson.

Required of juniors in forestry. Elective for others, with approval of the instructor. 1 lec.; 2 labs.; 3 cr.

29-30. Silviculture. The art of producing and tending a forest. Seed collection, storage and testing; nursery practice; forest plantations; systems of natural regeneration; intermediate cuttings; discussion of silvicultural practice in the most important forest regions of the United States. Mr. Stevens.

Required of sophomores in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

31, 32. Forest Utilization. Methods and costs of logging and milling in the chief lumber-producing regions of the United States; forest products, their manufacture, marketing and use; with special problems of the lumber business. Emphasis on New England conditions. Attendance on instruction trips is required for credit. Mr. Swain.

Required of certain juniors in forestry. Elective for others. 2 lec.; 1 lab.; 3 cr.

33. Forest Protection. Protection of the forest from such numerous enemies as fire, insects, fungi, and climatic extremes, also the construction of trails, roads, bridges, telephone lines and structures which are associated with protection. Mr. Swain.

Recommended elective for juniors in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

34. Fish and Game Management. An introductory course designed to acquaint the student with the fundamental principles underlying the management of wild life as a forest crop. Mr. Stevens.

Recommended elective for juniors in forestry. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

35, 36. Thesis. Work to be arranged according to the needs of individual students. Mr. Stevens, Mr. Swain, Mr. Johnson.

Prereq.: Forestry 25, 26; 27-28; and 29-30. Required of certain juniors and seniors in forestry. 2 lec.; 2 or 3 cr.

37. Forest Recreation. An introductory course covering principles and methods for planning, designing and administering public and semi-public forest recreational areas.

Prereq.: Permission of the instructor. Recommended elective for seniors in forestry. 2 lec.; 1 lab.; 3 cr. (Not offered in 1943–44.)

39-40. Forest Management. Management of woodlots and large forest tracts for the purpose of gaining the largest immediate and future returns. Preparation of working plans to coördinate mensuration, protection, improvement, and regeneration. Recent developments in forest administration and forest legislation. Mr. Johnson.

Prereq.: Forestry 25, 26; 27-28; 29-30; 31, 32. Required of seniors in forestry. 2 lec.; 2 lab.; 4 cr.

41. Practical Fish and Game Management. Given only at summer camp. Projects are worked out on the university forest at Passaconaway, N. H., and on a near-by game management area conducted by the United States Forest service. Mr. Stevens and others.

Prereq.: Forestry 29 and 34. Elective for juniors in forestry. Forty-five hours per week for 2 weeks. 2 cr. Elective for other than forestry students who present satisfactory evidence of adequate preparation. Forty-five hours per week for 8 weeks. 10 cr.

42. Timber Survey. Given only at summer camp. Investigation of a large block of timberland on the White Mountain national forest. The student prepares a detailed timber survey report and a topographic map of the area. Mr. Stevens, Mr. Swain, Mr. Johnson.

Prereq.: Forestry 28, and civil engineering 7. Required of juniors in forestry. Forty hours per week for 6–8 weeks. 8–10 cr.

52. History of Forestry. The history of forestry, its development and present status in different countries.

Required of certain seniors in forestry. Elective for others with approval of the instructor. 3 lec.; 3 cr. (Not offered in 1943–44.)

53. Wildlife Research Problems. Given only at summer camp. Special problems in connection with the management of fish and game. Open to advanced students or to those who show unusual promise in the field of research. Mr. Warfel and others.

Prereq.: Permission of the instructor. Forty-five hours per week for 8 weeks. 10 cr.

FRENCH

(See Languages, page 273.)

GEOGRAPHY

(See page 255.)

GEOLOGY

T. Ralph Meyers, *Associate Professor;* Donald H. Chapman, **Associate Professor;* Glenn W. Stewart, *Instructor;* John H. Sticht, *Instructor.*

*On leave of absence.

COURSES IN GEOLOGY

1-2. PRINCIPLES OF GEOLOGY. The earth and its history. A consideration of land forms and a discussion of the materials and structures of the earth's crust. The interpretation of past geologic events, and their effect on the development of life forms. Laboratory study of various land forms of the United States by means of maps; of common minerals and rocks of the earth's crust; and of the more common fossils. Occasional field trips to nearby points of geologic interest. Messrs. Meyers, Chapman, Stewart, and Sticht.

Freshman and sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

This course cannot be used to satisfy major requirements.

7, (7). GENERAL GEOLOGY. A general introductory course in physical geology. The structures and materials of the earth's crust and the forces which have produced and altered them. Mr. Stewart.

Required of freshmen in chemistry and sophomores in civil engineering. Elective for other students in technology and for students in agriculture. Open to liberal arts students by permission only. 2 lec. or rec.; 2 cr.

11. PHYSIOGRAPHY. The forces producing the present aspect of the land surface, particularly that of New England. Special emphasis on the work of running water, glaciers, and marine agents. Field trips during the fall season. Mr. Chapman.

Prereq.: Geology 2. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

12. STRUCTURAL GEOLOGY. An advanced study of the structures of the earth's crust and of the dynamics of their formation. Mountain systems, metamorphism, igneous structures, and theories of earth origin. Mr. Stewart.

Prereq.: One course in geology. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

51-52. MINERALOGY. The minerals that make up the earth's crust: crystals; minerals and their determination by means of physical characteristics; and the aggregation of minerals to form rocks. Mr. Stewart.

Prereq.: One course in geology and one course in chemistry. 2 lec. or rec.; 1 lab.; 3 cr.

53, 54. ECONOMIC GEOLOGY. First semester: the types of coal and their occurrence in the United States; petroleum, the structures in which it is found, and the distribution and geology of oil fields, especially in the United States; cement materials, building stones and related materials. Second semester: the metals, their ores, and the geology of important ore deposits. Mr. Meyers.

Prereq.: One year's work in geology. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

55-56. Paleontology. The history, development and morphology of the various groups of animals and, to a lesser extent, plants, as recorded by fossils found in the rocks of the earth's crust. Mr. Meyers.

Prereq.: One year's work in geology or zoölogy. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1943–44.)

57, 58. Geologic Problems. Special problems by means of conferences, assigned readings and field work, fitted to individual needs. Messrs. Meyers, Chapman, and Stewart.

Prereq.: Permission of the instructor. Credits to be arranged.

For courses primarily for graduate students, see the catalog of the Graduate school.

GEOGRAPHY

1-2. Geography of the Western and Eastern Hemispheres. A general survey of the geography of the earth, with emphasis upon its physical aspects. First semester: Western Hemisphere. Second semester: Eastern Hemisphere. Mr. Chapman.

Open to all students. 2 lec. or rec.; 2 cr.

This course cannot be used to satisfy science requirements, nor major requirements.

3. Physical Geography. A study of the physical elements of geography and their relationship to man. The elements included are: topography, climate, soil, minerals, water, and the general distribution of animals and plants.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

52. Geography of North America. (Formerly Geol. 4) The North American continent and its physical aspects. The weather and climate of the continent. The countries, treated regionally. Intensive study of the physical geography of New England. Mr. Chapman.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

This course cannot be used to satisfy science requirements.

Economic and Commercial Geography. See Economics 4.

METEOROLOGY

1. The Weather. (Formerly Geol. 5) The interpretation of atmospheric phenomena: the earth as a planet, the heating and circulation of the atmosphere, the seasons, and the nature and movement of the air masses which influence the weather of North America and particularly New England. Practical rules and methods of weather forecasting. Mr. Chapman.

Elective for all students. 2 lec. or rec.; 2 cr.

This course cannot be used to satisfy science requirements nor major requirements.

2. Climates of the World. (Formerly Geol. 6.) Elements of weather and climate. Classification of climates of the world. Examples and brief descriptions of major climatic types, and their influence on the life of man. Mr. Chapman.

Elective for all students. 2 lec. or rec.; 2 cr.

This course cannot be used to satisfy science requirements nor major requirements.

25. Meteorological Observations. This course is planned primarily for those desiring to prepare themselves for positions as United States Weather Bureau Airway Observers. Prompt and accurate determination of weather conditions, current methods of coding and transmission of weather data, and the care of weather instruments and records will be emphasized. Mr. Meyers, Mr. Chapman.

2 lec. or rec.; 2 cr.

26. Weather Map Plotting. A training course, using modern methods, for the plotting and interpretation of observational data used in the preparation of weather maps. Mr. Chapman and Mr. Sticht.

Prereq.: A course in meteorology. 2 lec. or lab.; 2 cr.

57-58. Meteorological Problems. Special problems by means of conferences, assigned readings, and laboratory work, fitted to individual needs. Mr. Meyers, Mr. Chapman.

Credits to be arranged. Prereq.: Permission of the instructor.

GERMAN

(See Languages, page 275.)

GOVERNMENT

Norman Alexander, *Associate Professor* and *Acting Head of Department;* *Thorsten Kalijarvi, *Professor;* *Lashley G. Harvey, *Assistant Professor;* John H. Reynolds, *Instructor.*

The Bureau of Government Research

The Bureau of Government Research was established to meet the demands for information about governmental matters and to serve as a clearing house on problems of public administration. Its activities are instruction, research, and service, with emphasis upon public administration, including intern and in-service training. It is the headquarters of the New Hampshire Municipal Association.

Juniors or seniors majoring in government may obtain practical training in public administration by serving as interns in some department of

* On leave of absence.

the state or local government. Such students should register for Social Science 81, 82, *Undergraduate Internships.* See page 308.

1. Citizenship. Present-day society; its political and social institutions; the development of an independent and informed attitude on vital political questions and the scientific approach to them; problems of political expression, public opinion, the history, membership, structure and aims of organizations exerting political pressure, nominations and elections, political democracy, and the meaning of the state. Mr. Reynolds.

Open to all students. 3 lec. or rec.; 3 cr.

This course cannot be used to satisfy major requirements.

2. War Problems. The historical background of war problems; the meaning of this total war, its strategy, diplomatic and political problems; the mobilization of the resources of the United Nations; the radio, press, and other methods of psychological warfare; postwar international planning including a discussion of the Atlantic Charter, the Wallace plan and other proposals. Mr. Alexander, Mr. Reynolds.

Open to all students. 3 lec. or rec.; 3 cr.

This course cannot be used to satisfy major requirements.

3-4. American Government. The work and organization of federal, state and local government; political parties in the United States; the functional relations between the several branches of government, and between political organizations and governmental policies. Present-day trends and problems in government. Mr. Reynolds.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

5-6. Comparative Government. A comparative study of the governments of England, France, Germany, Italy, Russia, China, Japan, and one or more Latin American states with special emphasis on the methods of legislation and the location of political control. Mr. Reynolds.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

7-8. International Law. The laws of peace and war; international legislation, treaties, sanctions; developments growing out of the war. Discussions supplemented by preparation and argument of cases. Mr. Reynolds.

Open to juniors and seniors. 3 lec. or rec.; 3 cr.

51. Constitutional Law. The case study of the constitutional development of the United States in terms of supreme, federal and state court decisions. Mr. Alexander.

Prereq.: Government 3-4. 3 lec. or rec.; 3 cr.

52. Introduction to Jurisprudence. Generalized principles of law and legal institutions. The law as an institution of social and political control.

Prereq.: Government 7-8 or 51, or Economics 21-22. 3 lec. or rec.; 3 cr. (Not offered in 1943–44.)

55, 56. International Relations and Organizations. The study of the relationship of forces in international politics; analysis of plans for coöperation among states including current proposals for regional and world organizations. Mr. Reynolds.

Open to juniors and seniors. 3 lec. or rec.; 3 cr.

58. Public Administration. The administration of modern states; the structure of administrative agencies; financial administration, personnel management; techniques and methods of administering public policies, government reporting; controls over administration by the legislature and by the courts. Discussion of the administration of laws pertaining to business, labor, welfare, the mobilization of resources for war purposes. Mr. Alexander.

Prereq.: Government 3-4 or open to students who are taking *American Government.* 3 lec. or rec.; 3 cr.

61, 62. Community Planning. An introduction to the subject of community planning having as purposes: (1) the acquainting of the student with planning programs and what has been done in the field, and (2) the introduction of the student to specialized training for planning. Detailed techniques and design will be avoided. The department of civil engineering will coöperate with the department of government in offering this course. Mr. Kalijarvi.

Elective for juniors, seniors, and graduate students. 3 rec.; 3 cr.

63, 64. Seminar. Readings, reports, and papers on assigned topics. Mr. Alexander.

For majors who have completed two years' work in government. Hours to be arranged. 1–6 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 307.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61-62.

For courses primarily for graduate students, see the catalog of the Graduate school.

GREEK

(See Languages, page 276.)

HANDICRAFT

(See The Arts, pages 207–208.)

HISTORY

HISTORY

DONALD C. BABCOCK, *Professor;* HERBERT F. RUDD, *Professor of Philosophy;* ALLAN B. PARTRIDGE, *Assistant Professor;* PHILIP M. MARSTON, *Assistant Professor;* WILLIAM YALE,* *Assistant Professor;* GIBSON R. JOHNSON, *Assistant Professor;* HARRY D. BERG, *Assistant Professor;* MARGARET I. ROSSELL, *Graduate Assistant.*

In these courses an important place is given to historical reading carried on in the reference room. Often a considerable part of the work is written.

The statements below as to prerequisites are for liberal arts students. Agriculture and technology students should consult the head of the department.

SURVEY COURSES

The following subject constitutes a basic course, required of all students in the College of Liberal Arts, to be taken in the freshman year.

1-2. INTRODUCTION TO CONTEMPORARY CIVILIZATION. Designed to provide a background of appreciation of the social significance of man's environment, the nature of man, the cultural heritage from the past, recognition of historical allusions in literature and conversation, and knowledge of the general sequence of historic events. Prehistoric and historic social evolution. The historic explanation of modern life and an appreciation of the problems of contemporary society. Messrs. Babcock, Berg, Johnson, Marston, Rudd, Yale.

4 lec. or rec.; 4 cr.

This course cannot be used to satisfy major requirements.

COURSES FOR UPPERCLASSMEN

GROUP I. ANCIENT AND MEDIEVAL

MR. PARTRIDGE, *In general charge.*

This group includes many of the customary well established courses in history. Students electing history courses with the general idea of rounding out their knowledge should include a selection from this group. History majors are expected to do a part of their work in it.

11. THE ANCIENT ORIENT. "Pre-historic" culture in the Near East: a consideration of the contributions of the many peoples and empires, from the Persian highlands to Egypt and the Aegean, in the making of the civilization handed on to the Mediterranean and western world. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

12. HISTORY OF GREECE. The deep-lying elements of western civilization as developed by Greek thought and action. Hellenic culture

* On leave of absence.

and its influence, including adequate attention to the period after the death of Alexander the Great. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

13, 14. History of Rome. The great completion and integration of ancient Mediterranean civilization under the headship of Rome. First semester: the preliterary foundations and legendary origins, the transition to republican life and institutions, and territorial expansion to the first century B.C. Second semester: the transition from republic to principate, and imperial and world affairs to the time of Justinian in 565. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

15, 16. Medieval History. First semester: the pageant of the Middle Ages from the period of the barbarian invasions to the first crusade. Second semester: to the 14th century. Designed: (1) to recapture the unique charm and social pattern of the Middle Ages, and (2) to interpret them as the source of modern times. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

17, 18. The Renaissance Period. The period when medieval institutions were both being consummated and fading away, and when a recovery of ancient factors in culture mingled with modern forces. The Renaissance as an artistic and broadly cultural revival, and as a forward movement introducing the modern period. In this and in the preceding course, considerable pictorial material is used. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

English History. (See history 21 which deals in part with the ancient and medieval periods.)

Far Eastern History. (See history 31.)

GROUP II. MODERN

Mr. Yale, *In general charge.*

This group is planned in recognition of the practical importance and large place assigned by common practice to modern, recent and present day aspects of history.

19, 20. Modern European History. Studies of: (1) That most important phenomenon, the modern national state; (2) Western civilization as it reached a peak in Europe; (3) European expansion and world leadership, from the late 15th to the early 20th century. Eastern

Europe, Asia, and Africa are referred to as backgrounds of the colonial movement. Because of its general importance, the course is open to all students; nevertheless, it is better, if possible, to study some of the earlier periods first. Mr. Yale.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

21, 22. History of England. The history of the British Isles from earliest times to the present and a consideration of the British Empire and Commonwealth of Nations. A parallel to English literature, a background to American political history, and a study of English culture and institutions in the democratic and social integration of the world. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

31, 32. History of East Asia. A survey of the growth of civilizations east of Persia, with special emphasis on China, Japan and their neighbors. This course deals with one-half of human history as well as with what is happening to one-half of mankind today. Mr. Rudd.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

61, 62. The World War. The 19th and 20th century background and causes of the first world war; the military, political, economic and social developments during the course of the war; the Paris peace conference. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

63, 64. Recent World History. The world after the first world war, exclusive, for the most part, of American affairs, and stressing historical developments in Europe, the Near and Far East. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

GROUP III. AMERICAN HISTORY

Mr. Marston, *In general charge.*

This group addresses itself to (1) the responsibility of the American student to know his own country; (2) the widespread and well established interest in New England's part in our history; (3) the developing Pan-American world; (4) some special aspects of American life and of 19th and 20th century American culture.

7-8. The United States from 1790 to 1900. The administration of Washington, the great forces of nationalism, expansion, democracy and sectionalism followed through the period of the Spanish-American War. Reference to such aspects of our national life as literary, artistic, scientific and everyday life-ways, as well as the more usual political and economic events. Mr. Berg.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

9, 10. Latin-American History. The development and influence of Spanish and Portuguese culture as a wide-spread world force; the history of the Latin-American peoples; the relationship of Latin America and North America, particularly in view of recent growth in friendly and diplomatic relations. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

51-52. Colonial and Revolutionary American History. Colonial beginnings in America, national rivalries, the English colonies, the Revolution, and our national life to 1789. Early forms of Americanism in the making. Mr. Marston.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

59-60. Social and Cultural History of New England. From the settlements to the present. The material and intellectual aspects peculiar to New England's social and cultural life. The viewpoint is partly that of the antiquarian. Source materials figure considerably. It is assumed that the student is familiar with the general history of New England. Mr. Marston.

Elective for juniors and seniors who have taken the former history 7-8 or 51-52. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

65-66. Recent and Contemporary American History. Developments in American life since the opening of the twentieth century. The revolution in our material world and our outward life. The reaction of our individualism in the presence of new world ideologies, and the extent of its modification. A close-range observation of social history in the making. Current newspapers and periodicals will be used. Mr. Rudd.

Elective for juniors and seniors. 2 lec., rec., or discussions; 2 cr.

GROUP IV. HISTORY FROM AN EDUCATIONAL VIEWPOINT

Mr. Berg, *In general charge.*

67, 68. Historical Geography and Biography. Schools of thought in history are likely to be either environmental or personal; that is, either deterministic or voluntaristic. This course devotes a semester to each way of thinking, reviewed in the light of concrete data. New applications and methods of study and teaching will receive some attention, for example, the use of maps, and map-making for classrooms and the study of representative, as distinguished from great, persons. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; not offered in 1943–44.)

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. The purposes and objectives of teaching high school history; selection and organization of teaching material; teaching and testing techniques which may be advantageously used in teaching high school history and the other social studies; experiments in studying and teaching history. Mr. Berg.

Open to students who have satisfactorily completed history 7-8, government 1, 2, economics 1-2 or 3, 4, and education 61. 3 class meetings; 3 cr. For teachers primarily in service, one 2-hour rec.; 2 cr.

HISTORY-EDUCATION (HIST-ED) 92. PRACTICUM IN THE TEACHING OF HISTORY IN HIGH SCHOOLS.

Open only to students who have done cadet teaching in history or the social sciences. 3 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 307.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61-62.

GROUP V. PHILOSOPHICAL

In general charge: For courses in philosophy and ethics, MR. RUDD; *for courses in history of religion,* MR. JOHNSON.

In the following group appear the offerings of the university in (1) philosophy, (2) ethics, (3) religious history, (4) philosophical aspects of history. The purpose throughout is the understanding of existence as an integrated whole.

23, 24. HISTORICAL ORIGINS AND DEVELOPMENT OF CHRISTIANITY. The life, literature, religion and social development recorded in the Old Testament are studied as a cultural background. An investigation of the historic data existing about the life, character and teaching of Jesus. The growth and expansion of the Christian movement. Designed to furnish students an opportunity to evaluate their own religious heritage in the light of contemporary thought, and to make special study of particular intellectual problems. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; not offered in 1943–44.)

25, 26. HISTORY OF RELIGIONS. Religion as an historic force in society. The nature of religion, its origins, and early development treated in connection with primitive social history. A study of the principal religions of the world, special attention being given to Hinduism, Buddhism, Zoroastrianism, Confucianism and Mohammedanism. The

history, literature, and philosophy of the oriental civilizations and cultures as a background. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; offered in 1943–44.)

55, 56. The Philosophy of History. (1) Some of the less obvious aspects of chronology, periodizing as a means of interpreting history, etc. (2) Culture-history, including the historical side of everyday things. (3) The philosophy-of-history proper, or a study of some of the ways in which thoughtful persons have interpreted the nature of history as a whole. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; offered in 1943–44.)

69. Foundations of Democracy. Starting with the assumption that there will be, following the present war and as a result of it, a renewed attempt at world organization, and that this will largely be shaped by the democratic nations, this course attempts to clarify such topics as: the European backgrounds of democratic ideas; the origin of the Bill of Rights and of responsible government; American variants of the democratic pattern; the philosophical basis of democracy; the future of democracy in world society. Mr. Babcock.

2 lec. or rec.; 2 cr.

Philosophy 71, 72. The Art of Thinking: Logic. The many factors which determine the quality of human thinking as trustworthy or untrustworthy; the aids to better thinking practices. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

Philosophy 81, 82. Historical Introduction to Philosophy. Two objectives are approached simultaneously: (1) an understanding of the succession of philosophic systems and the great philosophers who projected them, from the beginning of Greek philosophy to the present; (2) a systematic survey of the persistent problems of life as philosophers have seen them, and of the types of philosophic world-view that have contested for acceptance. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

Philosophy 83, 84. Ethics: Historical and Applied. First semester: Social values and ethical judgments as they have evolved in the history of man. Second semester: problems of conduct in this changing world including personal, vocational and institutional ethics. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or rec.; 2 cr.

For courses primarily for graduate students, see the catalog of the Graduate school.

HOME ECONOMICS

HELEN F. MCLAUGHLIN, *Professor;* LUCILLE PEPOON, *Assistant Professor;* WILMA D. BREWER, *Assistant Professor;* SHELBY MITCHAM, *Assistant Professor;* LILLIAN B. HUDON, *Instructor;* VERNA MOULTON, *Instructor;* MARTHA GARLAND, *Instructor;* TATIANA LEVCOWICH, *Instructor.*

1, 2. HOMEMAKING. The various phases of homemaking and the vocational opportunities open to women. Mrs. McLaughlin.

Basic course for students majoring in home economics. Elective for other students. 3 lec. or rec.; 3 cr.
This course cannot be used to satisfy major requirements.

Note: Further work than is offered in any of the following courses may be taken under Home economics 47, (47), Projects in Home economics. See page 267.

CLOTHING AND TEXTILES

3. CLOTHING SELECTION. The selection of suitable and becoming clothing; good grooming; clothing budgets; care and repair of clothing. Miss Moulton.

3 lec. or rec.; 3 cr.

4. TEXTILES. (Formerly H.E. 4, *Clothing Selection.*) A study of textiles with emphasis on their characteristics, utilization, care, and purchase from the point of view of the consumer. Miss Moulton.

3 lec. or rec.; 3 cr.

5-6. CLOTHING CONSTRUCTION. Application of the principles of design and development of technique in garment construction including cotton and wool problems, a renovation problem and a draping problem on the dress form. Section 1.—For those students having little or no experience in sewing. Section 2.—For those students who have had previous experience in sewing. Admission to sections by permission of the instructor only. Miss Moulton.

2 lab.; 2 cr.

HISTORIC COSTUME AND DESIGN. (See ARTS 43–44.)

61, (62), (61), 62. ADVANCED PROBLEMS IN CLOTHING CONSTRUCTION. Individual problems involving advanced techniques in the construction and renovation of clothing. Admission to course by permission of the instructor only. Open to both undergraduate and graduate students. Miss Moulton.

2 labs.; 2–3 cr.

FOOD AND NUTRITION

15-16. FOODS. The composition, selection, preservation and preparation of foods; meal planning; preparation and service. Miss Brewer, Miss Levcowich.

Prereq. or parallel: Chemistry 1, 2. 1 lec.; 2 lab.; 3 cr.

21, 22. Elementary Meal Service. Planning, preparation and service of healthful and attractive meals. Miss Levcowich.

Elective for students not majoring in home economics.
1 lec.; 1 lab.; 2 cr.

71, 72. Advanced Problems in Foods. (Formerly H.E. 17, 18.) Selected problems in one or more phases of food study: experimental food study; advanced cookery; meal planning and service; tea room management. Open to both undergraduate and graduate students. Miss Levcowich.

Prereq.: Home economics 15-16. 1 lec.; 1 lab.; 2 cr.

74. Dietetics. (Formerly H.E. 20.) Application of the principles of human nutrition to varying physiological, social, and economic conditions. Miss Brewer.

2 lec.; 1 lab.; 3 cr.

75. Diet Therapy. (Formerly H.E. 19.) Study of special diets used for the prevention and treatment of various diseases. Readings in the current literature of nutrition and special diets. Miss Garland.

Prereq.: Home economics 74. 3 rec.; 3 cr. Required of institutional administration and hospital dietetics seniors. Elective for other students.

CHILD DEVELOPMENT

25-26. Child Development. The normal development and care of the infant and child; mental, social and emotional development and guidance. Miss Pepoon.

Prereq. or parallel requirement: Psychology 11 or 51. 2 lec. or discussions; laboratory work with children in the play group; reference reading; 3 cr.

81, (82), (81), 82. Projects in Child Development. (Formerly H.E. 27–28.) Principles of child guidance. Nursery school procedures and practice. Class discussion and supplementary projects based upon the special interests of the students.

Prereq.: Home economics 25-26. 2 lec. or discussions; laboratory with children in the play group; 2–3 cr.

HOME MANAGEMENT

Home Building. (See Architecture 13.)

32. Home Furnishing. The planning, decorating and furnishing of a modern home. Miss Mitcham.

3 lec.; rec. or conferences; 3 cr.

33. Home Management. Management of money, time and energy in relationship to home living; care and use of home equipment. Miss Pepoon.

2 lec. or rec.; 1 lab.; 3 cr.

34. Consumer Problems. (Formerly H.E. 34. *Home Management.*) Problems of the consumer as related to market practices, quality and quantity standards, evaluation of advertising, and selection of goods and services for the home. Miss Pepoon.

3 lec. or rec.; 3 cr.

35, (35). Home Management House. Participation in homemaking; planning, buying, and preparation of meals; care of the house; efficient work habits; problems of management. Seven weeks' residence in the home management house. Miss Pepoon.

Required of students in the home economics teacher preparation curriculum; elective for other students by permission of the head of the department. Class limited to seven (four groups per year). 3 cr.

INSTITUTIONAL MANAGEMENT

41. Institutional Management. The organization, equipment, and management of typical institutions; the buying, planning, preparing and serving of meals for large groups. Field trips to study equipment and management. Miss Hudon.

3 lec. or rec.; 3 cr.

43-44. Institutional Practice. Practical experience in the kitchens and serving rooms of the university Commons. Miss Garland.

2 lab.; 2 cr.

46. Furniture and Textiles. Problems in the selection, care and use of furniture and textile materials for institutions. Required of hotel administration juniors and hospital dietetics seniors; elective for institutional administration juniors. Miss Mitcham.

3 rec.; 3 cr.

48. Field Work in Institutional Practice and Extension. Six to ten weeks' residence and practical experience in an approved hospital or other institution, or an extension group, supplemented by readings and conferences. Mrs. McLaughlin and Extension staff.

3–6 cr.

49-50. Quantity Cookery. Practical experience in large quantity cookery in the quantity cookery laboratory at the university Commons. Miss Garland.

Prereq.: Home economics 15-16. Required of hospital dietetics and institutional administration seniors and hotel administration juniors. 2 lab.; 2 cr.

HOME ECONOMICS EDUCATION

47, (47). Projects in Home Economics. Opportunities for students to work out projects supplementary to or in advance of other courses. Not more than 9 credits may be taken in this course. Members of home economics staff.

Conferences and assignments; reference readings; 1–3 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. Miss Mitcham.

3 lec. or rec.; 3 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 94. SUPERVISED TEACHING IN HIGH SCHOOL HOME ECONOMICS. Miss Mitcham.

Eleven weeks supervised teaching, 11 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 96. SEMINAR IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. Miss Mitcham.

Required of all students who have done supervised teaching. Four weeks' intensive work following period of supervised teaching. 3 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 98. PRINCIPLES AND TECHNIQUES OF DEMONSTRATIONS. Fundamentals of demonstration methods. Experience in conducting demonstrations in foods, clothing, home management, equipment, and other fields. Home economics staff.

1 conference; 1–2 labs.; 2–3 cr.

For courses primarily for graduate students, see the catalog of the Graduate school, under the department of education.

HORTICULTURE

ALBERT F. YEAGER, *Professor;* J. RAYMOND HEPLER, *Associate Professor;* L. PHELPS LATIMER, *Assistant Professor;* WILLIAM W. SMITH,* *Assistant Professor;* HENRY S. CLAPP, *Instructor;* W. D. HOLLEY, *Instructor.*

1. GENERAL HORTICULTURE. Fruits, vegetables, landscape gardening, and flowers are covered briefly with emphasis on the application of fundamental science to practices. Mr. Yeager.

Required of sophomores in agriculture. Paired with agricultural engineering 5; one half-semester. 3 lec.; 1 lab.; 2 cr.

13. JUDGING IN HORTICULTURE. A course designed to give the student sufficient information on the judging of fruits, vegetables, flowers, and products made from these materials so that he would be capable of judging a small show such as might be put on by a grange or community club. It is designed not only for horticultural students but for students who expect to be county agents or teachers. Since judgments are based on consumer values, hotel management and home economics students should find this course useful. Mr. Latimer, Mr. Hepler, Mr. Holley.

Elective for any student. 2 lab.; 2 cr.

14. ELEMENTARY VEGETABLE GARDENING. Garden soils; testing and planting seeds, selection of varieties with reference to New Hampshire conditions; construction and management of hotbeds and cold frames; fertilization, cultivation and irrigation of the garden. Mr. Hepler.

* On leave of absence.

Required of vegetable majors; suitable as an elective for anyone wishing a general elementary course in vegetable gardening. 2 lec.; 1 lab.; 3 cr.

26-27. Ornamental Woody Plants. The identification and culture of trees, shrubs and vines and their use in landscape planting. Practice in pruning, transplanting and care. Mr. Clapp.

Required of horticulture students who do not elect horticulture 55 or 57. Elective for any student. 1 lec.; 2 lab.; 3 cr.

28. Elementary Landscape Gardening. Principles involved in ornamental and landscape gardening. Special attention given to beautifying the home surroundings. Mr. Clapp.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

38. Floral Arrangement. Instruction in the principles and theories of floral design and the use of flowers in the home, in halls, and churches; actual practice in floral arrangement. Flowers used in laboratory become the property of the student. A laboratory fee of $3.00 is charged. Mr. Clapp.

Elective for any student. Registration by permission of instructor. 1 lab., 1 cr.

39. Greenhouse Management. Modern methods of greenhouse work and the more important plants grown commercially under glass, including vegetables and flowers. Varieties, culture, marketing and enemies of greenhouse plants. Practical work in propagating, potting, watering plants, and ventilating greenhouses. The history and development of different types of greenhouses. Mr. Holley.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

40. Outdoor Floriculture. The art of growing flowers in the garden. The classification and culture of flowering annuals, herbaceous perennials, bulbs, and bedding plants. Field trips. Mr. Holley.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

44. Horticultural Practice. Seasonal practice work in fruit-growing, including pruning, grafting, planting, and spraying; or similar work with vegetables or ornamental plants. Two half-days each week in the orchard, garden or greenhouses, and a one-hour meeting to discuss fundamental principles involved. Horticultural staff.

Prereq.: Horticulture 14, 28 or 40. Required of all majors qualified to take it. 1 lec.; 4 lab.; up to 5 cr. (Note.—By permission of the department, students who have had previous practical experience may substitute 5 semester credits of electives for this course.)

48, 49. Beekeeping. The life history and habits of honey bees and their adaptation to apiary conditions are given in the second semester,

which should preferably precede the first. Laboratory work in the assembling and use of hives and hive fittings, and practice in handling bees. First semester: the principles and methods underlying the production of commercial crops of comb and extracted honey, with laboratory practice in the care and protection of bees during fall and winter, the extraction of honey and preparation for market of comb honey and wax. Mr. Hepler.

Elective for any student. 1 lec.; 1 lab.; 2 cr.

51, 52. Advanced Horticulture. Subject matter in any phase of horticulture (with laboratory practice if desirable) to meet the needs of special students or groups of students. Horticultural staff.

Elective for juniors and seniors. Students must obtain permission to register from the head of the department. Hours and credits to be arranged.

53. Pomology: Orchard Fruits. Fundamental principles and experimental data and their applications to orchard problems such as establishing orchards, growth and rest periods, water requirements, soil management, pruning, fruit bud formation, fruit-setting pollination, thinning, and winter injury. Mr. Latimer.

Prereq.: Botany 1. Elective for juniors and seniors. 3 lec.; 3 cr.

54. Pomology: Small Fruit Culture. The culture and economic uses of the strawberry, raspberry, blackberry, blueberry, and grape. Each fruit is considered with relation to its history, propagation, planting, pruning, harvesting, marketing, insects and diseases, and domestic uses. Mr. Latimer.

Elective for any student. 2 lec.; 2 cr.

55. Systematic Survey of Fruits. Important species of fruits and nuts of temperate regions and their botanical relationships. The history, distribution, and merits of each species, and the horticultural varieties developed from it. Mr. Latimer.

Prereq.: Botany 1. Elective for juniors and seniors. Required of seniors in horticulture who have not taken horticulture 57 or horticulture 26-27. 2 lec.; 2 cr. (Given in alternate years; not offered in 1943–44.)

57. Systematic Survey of Vegetables. Important species of vegetables and culinary herbs and their botanical relationships. The history, distribution, and commercial merit of each species and the horticultural varieties developed from it. Mr. Hepler.

Elective for juniors and seniors. Required of seniors in horticulture who have not taken horticulture 53 or horticulture 26 and 27. 2 lec.; 2 cr. (Given in alternate years; offered in 1943–44.)

61. Harvesting, Storing and Marketing. The handling of vegetable and fruit crops, technicalities of grading, agencies used and prob-

lems in storing, transporting and merchandising the crop, with laboratory practice in packing-house work.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

65. COMMERCIAL VEGETABLE PRODUCTION. The management of commercial vegetable gardens. A study of the important vegetables and their culture including a comprehensive review of recent experimental work in the vegetable field. Mr. Hepler.

Prereq.: Horticulture 14. Required of horticulture students who do not elect horticulture 53 or horticulture 26 and 27. Elective for juniors and seniors. 2 lec.; 1 lab.; 3 cr.

91, 92. HORTICULTURE SEMINAR. A review of recent horticultural literature and methods of investigational work. Students required to prepare and present papers on selected topics. Horticultural staff.

Required of seniors in horticulture. Other students must obtain permission to enroll. 1 lec.; 1 cr.

94. PLANT BREEDING. Application of the principles of genetics to practical plant breeding. Hybridization, chemical treatments, and selection as means of producing and improving varieties. Mr. Yeager.

Prereq.: Zoölogy 49. Elective for any student. 2 lec.; 1 lab.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

HOSPITAL DIETETICS

(See pages 137–138 and 149.)

HOTEL ADMINISTRATION

RAYMOND R. STARKE, *Professor.*

The courses listed below are given primarily for students in hotel administration. The department head acts as supervisor for students in this curriculum; office hours are maintained for purposes of consultation. Other students, not following the hotel administration curriculum, are invited to elect these courses with the permission of the instructor provided they have the proper prerequisites.

*1. ORIENTATION. Some time is utilized to accustom the students to methods used in local university work, in a treatment of the history and organization of the university, followed by the history of hospitality the world over, particularly the development of the hotel business in the United States.

Required of freshmen in hotel administration. 2 lec.; 1 cr.

5. HOTEL OPERATION. The problems of the hotel manager form the basis of work in this course. Some sections studied are the organization, personnel and work of departments, front office procedure, control

* Not to be included in the courses to meet the requirements of 27 semester credits in prescribed courses with grades of 75 or better.

of income and expenditure and overhead expenses incurred in establishing a hotel property. The point of view of the resort hotel man is constantly being compared with that of the metropolitan operator.

Required of juniors in hotel administration. Accounting 9-10 should precede or accompany this course. 3 lec. or rec.; 3 cr.

6. Hotel Public Relations. The relations of the hotel with the public, either as prospective or present guests; sales promotion media and advertising.

Elective for juniors and seniors. 2 lec. or rec.; 2 cr.

8. Front Office Procedure. The layout of the hotel office, the members of the staff and their relation to other staffs of the hotel. Equipment, and procedures of keeping guest accounts.

Elective for seniors in hotel administration. 1 class discussion; 1 cr. (Not offered in 1943–44.)

12. Financial Statements. A study of financial reports and statements directed towards costs and percentages in hotel operations. The work is based on the Uniform System of Accounts for hotels as recommended by the American Hotel association.

Prereq.: Accounting 10 or hotel administration 5. 2 lec. or rec.; 2 cr.

21, 22. Introductory Hotel Engineering. To give an engineering background with additional practical information, this course supplies much of the material of an elementary physics course with an added study of practical hotel problems, for example, common laundry practices and kitchen planning. Laboratory work will supplement the recitations and three or more inspection trips are made during the year.

Required of sophomores in hotel administration. 3 lec. or rec.; 1 lab.; 4 cr.

23. Stewarding. The management of the steward's department of a hotel, comprising the purchasing, storage, and issuing of foods, beverages and supplies with the proper records to keep in connection therewith. This course will be given by an experienced steward, brought to the campus for this express purpose.

Prereq.: none. 2 lec. (One afternoon on alternate weeks); 1 cr. (Not offered in 1943–44.)

40, 42, 44, 46. Lectures on Hotel Management. Delivered by representative and well known men in the hotel business and allied fields. All students in hotel administration must register for this course every year.

INSTITUTIONAL MANAGEMENT

(See pages 139 and 152.)

JOURNALISM

(See Publicity, pages 129–130 and 306–307.)

LANGUAGES

CLIFFORD S. PARKER, *Professor;* JOHN S. WALSH, *Associate Professor;* PAUL L. GRIGAUT, *Associate Professor;* JULIO BERZUNZA, *Assistant Professor;* JOHN A. FLOYD,* *Assistant Professor;* JAMES T. SCHOOLCRAFT, *Assistant Professor;* ALBERT F. BUFFINGTON, *Assistant Professor.*

GENERAL LANGUAGE AND LITERATURE

LANGUAGES 1, 2. SURVEY OF GREEK AND ROMAN LITERATURE. The masterpieces of Greek and Roman literature in translations. The environments, ideals and personalities of the great writers of antiquity and their contributions to the modern world. A cultural course for the general student unprepared to read the original languages but desiring acquaintance with this important subject-matter. A background course for majors in such subjects as English, history, Latin, or one of the modern languages and literatures. Continued in languages 51, 52. Mr. Walsh.

3 rec.; 3 cr.

LANGUAGES 51, 52. SURVEY OF MODERN EUROPEAN LITERATURE. The Renaissance, classicism, romanticism and realism studied as international movements. Stress will be laid, not upon the details of each national literature, but upon the interdependence of the literatures of the various countries. Literature interpreted as a product of changing patterns of civilization and social ideas. Required reading in the original language or in translations. Conducted in English. Mr. Grigaut.

Prereq.: Junior, senior, or graduate standing. 3 rec.; 3 cr.

LANGUAGES 73-74. GENERAL INTRODUCTION TO THE SCIENCE OF LANGUAGE. An introduction to the science of linguistics. The origins of language; the languages of the world; phonology; morphology; syntax; semantics; etymology; language and writing; the science of comparative philology and its development; dialect divergence; the principles of linguistic change; race, culture, and language; the psychology of language. The course, though designed particularly for majors in English or other languages, is open to all students. Mr. Buffington.

3 lec.; 3 cr.

FRENCH

(Freshmen will be assigned to French 1, French 3, or French 5, on the basis of their performance in the French placement examination in freshman week.)

1-2. ELEMENTARY FRENCH. Elements of French grammar, reading of simple prose, oral practice, dictation. The work of the course will be adapted to those entering with credit and without credit in high school French. Mr. Walsh.

3 rec.; 3 cr.

Cannot be counted for major credit.

* On leave second semester 1942–43.

3-4. Intermediate French. Review of most important rules of grammar; reading of a large amount of diversified French prose, partly in class, partly outside; oral practice. Some of the reading and conversational work will involve a vocabulary of military terms and everyday expressions which will be valuable for men or women who may enter the armed services or government agencies and who may be sent to French colonies or to France. Principal objectives: (1) to give a solid foundation for work in French; (2) to increase the facility and accuracy of students' reading and oral knowledge of French. Mr. Parker, Mr. Grigaut.

Prereq.: French 2 or its equivalent. 3 rec.; 3 cr.

5-6. French Civilization and Literature. The history of French civilization; careful study of a few masterpieces of French literature; rapid reading of numerous books outside of class; composition and oral practice. Principal objectives: (1) to study the history of French culture in its various aspects; (2) to increase students' ability to use and understand the French language; (3) to prepare for the study of French language and literature in more advanced courses; (4) to enable students to understand some of the forces which may influence the reconstruction of France after the war. Mr. Parker, Mr. Grigaut.

Prereq.: French 4. 3 rec.; 3 cr.

11-12. French Literature of the Seventeenth and Eighteenth Centuries. (Formerly 11-12, *French Classicism.*) A survey of French literature from 1600 to the French Revolution. Topics studied include: the rise and development of the classical ideal; the masterpieces of the great writers of the age of Louis XIV; the decline and disintegration of classicism in the 18th century; the work and influence of Voltaire and Rousseau; the writers who represent the beginnings of romanticism. Mr. Parker.

Prereq.: French 6. 3 rec.; 3 cr.

13-14. French Composition and Conversation. The use of written and spoken French taught by careful attention to pronunciation, composition and grammar. Especially valuable for students who wish to teach French. This course should be taken by every student desiring to obtain departmental recommendation for the teaching of French. Advance permission of instructor or head of department required. Mr. Grigaut.

Prereq.: French 4 with grade of 75 or better; or French 6.
3 rec.; 3 cr.

53. French Romanticism and Realism. (Formerly 53, *French Romanticism.*) The period from 1800 to approximately 1870; Chateaubriand and Mme. de Staël; the Romantic School (Lamartine, Vigny, Victor Hugo, Dumas, Musset, etc.); the historical novel and drama; the intermingling of romanticism and realism in the work of Balzac; realism in the novel, the drama, and poetry (Flaubert, Augier, Dumas fils, Leconte de Lisle, etc.). Mr. Parker.

Prereq.: French 12. 3 rec.; 3 cr. (Will not be offered in 1943–44.)

54. FRENCH LITERATURE FROM 1870 TO THE PRESENT. (Formerly 54, *French Romanticism.*) The work of Zola, Maupassant, Daudet, Bourget, Verlaine, Becque, and other outstanding writers of the last part of the 19th century; the various trends, schools, and individual writers of the 20th century. Mr. Grigaut.

Prereq.: French 53. 3 rec.; 3 cr. (Will not be offered in 1943–44.)

61-62. FRENCH GRAMMAR. A systematic study of French grammar in all its phases from elementary to highly advanced. Intended primarily for those preparing to teach French. Mr. Parker.

Prereq.: Junior, senior or graduate standing. 3 rec.; 3 cr.

63-64. FRENCH LITERATURE AND CIVILIZATION OF THE MIDDLE AGES AND THE RENAISSANCE. The various forms and masterpieces of French literature from the beginning to the year 1600, with consideration of their historical and social background. Recommended for seniors and graduate students. Mr. Parker.

Prereq.: French 12 or 54. 2 lec.; 2 cr.

FRENCH-EDUCATION (FR-ED) 91. PROBLEMS IN THE TEACHING OF FRENCH IN THE HIGH SCHOOL. The special objectives, methods, and problems of high school French. Open only to seniors and graduate students who are planning to teach. Mr. Floyd.

Prereq.: Permission of head of the department. 3 rec.; 3 cr.

92. ORAL FRENCH. Accuracy and facility in the use of oral French will be attempted through the study of phonetics and the use of dictation, conversation, the phonograph, the dictaphone and other devices. Mr. Grigaut.

Prereq.: French 14 or French-education 91. 2 rec.; 2 cr.

GERMAN

1-2. ELEMENTARY GERMAN. The fundamentals of German grammar as a necessary foundation for reading. Conversation, memory work, and the reading of a large amount of simplified prose. Mr. Schoolcraft, Mr. Buffington.

3 rec.; 3 cr.

This course cannot be used to satisfy major requirements.

3-4. INTERMEDIATE GERMAN. A continuation of elementary German. Reading and translation, review of grammar, conversation. Main emphasis is placed on the rapid and accurate reading of German to prepare students for courses in German literature, for the use of German in other academic fields, such as English, history, and social science. Some attention will be paid to the reading of German script. Mr. Buffington.

Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

5-6. Scientific German. For pre-medical students and majors in physics, chemistry, geology, forestry, agriculture, and engineering. To facilitate the reading of German scientific treatises. Mr. Schoolcraft.

Prereq.: German 2 or two years of high school German. 3 rec.; 3 cr.

11-12. German Literature from 1750 to the end of the Classical Period. Lectures, interpretations, collateral reading, and reports. The development of German literature during the epoch of the *Aufklärung* and the *Sturm und Drang* to the end of the classical period. Lessing, Goethe and Schiller chiefly studied. Mr. Schoolcraft.

Prereq.: German 4 or the equivalent. 3 class hours; 3 cr. (Not offered in 1943–44.)

13-14. German Conversation and Composition. Recommended for students who desire a fluent practical command of spoken and written German. Class discussions conducted in German. Opportunity for informal conversation, for discussion in German of topics prepared in advance, and for free German composition. Special emphasis will be placed upon a vocabulary of military terms. Mr. Buffington.

Prereq.: German 2. 3 rec.; 3 cr. (Given in alternate years; offered in 1943–44.)

53-54. German Romanticism. The revival of the historical and imaginative Middle Ages in the first half of the nineteenth century. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; not offered in 1943–44.)

57-58. Modern German Literature. The development of German literature from 1832 to the present, with special emphasis on the novel and drama. Authors considered are Grillparzer, Hebbel, Ludwig, Keller, Meyer, Wagner, Hauptmann, Sudermann, Thomas Mann, Rilke, George and Schnitzler. Mr. Buffington.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; offered in 1943–44.)

63-64. History of German Literature. Its development from pagan to modern times. Representative works read in and out of class. The history of German civilization is taken up parallel with the history of literature. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 3 class hours; 3 cr. (Given in alternate years; not offered in 1943–44.)

GREEK

1-2. Elementary Greek. Grammar, composition, translation. Mr. Walsh.

Prereq.: Permission of the instructor. 3 rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

LATIN

1-2. Elementary Latin. Elements of Latin grammar, reading of simple prose. Study of the changes in meaning and form of English and Romance language derivatives from Latin. For students who have had no Latin at all and for those who, not having studied Latin for some time, need to review the fundamentals of the language. Assignments will be varied to suit the diverse abilities of students who elect the course. Mr. Walsh.

3 rec.; 3 cr.
This course cannot be used to satisfy major requirements.

3-4. Intermediate Latin. A review of Latin grammar and vocabulary, followed by readings in poetry and prose. Mr. Walsh.

Prereq.: Latin 2 or two years of high school Latin. 3 rec.; 3 cr. (Not offered in 1943–44.)

5-6. Latin Poetry. Selected poems of Catullus, Ovid, Phaedrus, Martial and the odes and epodes of Horace. Translations, lectures and study of Latin influence on English poetry. Mr. Walsh.

Prereq.: Latin 4, or three years of high school Latin. 3 rec.; 3 cr.

7-8. Latin Prose and Comedy. The plays of Plautus and Terence, Livy's History (Books I and II), and Pliny's Letters studied for their value as mirrors of the life and history of Rome as well as for their literary value. Mr. Walsh.

Prereq.: Latin 4. 3 rec.; 3 cr. (Not offered in 1943–44.)

9-10. Masterpieces of Latin Literature. Intensive study of selections from the outstanding works of such prose writers as Plautus, Livy, Pliny, Caesar, and Cicero, and of such poets as Catullus, Horace, and Virgil. Rapid reading of other works by the same and additional authors. Lectures on Roman civilization and its contributions to the general culture of the world. Mr. Walsh.

Prereq.: Permission of the instructor. 3 rec.; 3 cr.

51-52. Philosophy and Satire. Philosophy, religion, natural science and social theories of the Romans, as exemplified in the writings of Horace, Martial and Cicero. Mr. Walsh.

Prereq.: Latin 6. 3 rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

55-56. Literature and History. A comprehensive view of Latin literature of the Golden Age, particularly the works of Caesar, Cicero and Virgil. Literary value and historical content will be studied as well as

such background of the history of Rome during the period as is necessary for the student or teacher of the classics. Mr. Walsh.

Prereq.: Latin 8. 3 rec.; 3 cr. (Given in alternate years; not offered in 1943–44.)

Latin-Education (lat-ed) 91-92. Problems in the Teaching of High School Latin. The study of methods, objectives, and problems of teaching high school Latin will be carried on throughout the year concurrently with work in composition and conversation. Open to those who have taken or are taking another course in college Latin and recommended for prospective teachers of Latin.

3 rec.; 3 cr. (Formerly given as Latin 63-64; not offered in 1943–44.)

SPANISH

1-2. Elementary Spanish. Elements of Spanish grammar, reading of simple prose, oral practice, dictation. Mr. Berzunza, Mr. Floyd, Mr. Walsh.

3 rec.; 3 cr.

This course cannot be used to satisfy major requirements.

3-4. Modern Spanish Prose and Poetry. Review of grammar, reading, composition, and conversation. A large part of the reading will be in the field of Latin-American literature and civilization. Mr. Berzunza, Mr. Floyd.

Prereq.: Spanish 2 or its equivalent. Freshmen who offer two or more units of Spanish for admission to college may take this course. 3 rec.; 3 cr.

7-8. The Spanish Novel. Representative novelists of the modern period such as Fernán Caballero, Valera, Pérez, Galdós, Pardo Bazán and Palacio Valdés. In the latter part, Cervantes will be studied. Collateral reading, reports and lectures on the history of the novel. Mr. Berzunza.

Prereq.: Spanish 4. 3 rec.; 3 cr. (Not offered in 1943–44.)

11-12. Spanish Drama. Dramas of Lope de Vega, Calderón, Echegaray, the Brothers Alvarez Quintero, Benavente and others. This course is carried on as far as possible in Spanish. Mr. Berzunza.

Prereq.: Spanish 4. 3 rec.; 3 cr. (Not offered in 1943–44.)

13-14. Spanish Composition and Conversation. The use of written and spoken Spanish taught by careful attention to pronunciation, grammar and composition. While there will be some reading as a basis for conversation, the main stress will be laid on oral practice. Mr. Berzunza.

Prereq.: Spanish 4 or grade of 80 in Spanish 2. 3 rec.; 3 cr.

LATIN

(See Languages, page 277)

LAW

(See Pre-Law, page 132)

MATHEMATICS

HERMON L. SLOBIN, *Professor;* GEORGE N. BAUER, *Professor;* MARVIN R. SOLT, *Associate Professor;* DANIEL C. LEWIS, *Associate Professor;* HORACE A. GIDDINGS, *Associate Professor;* MILITIADES S. DEMOS, *Assistant Professor;* WILLIAM L. KICHLINE, *Assistant Professor;* DONALD M. PERKINS, *Instructor;* RUTH B. KELLY, *Instructor;* MARY E. WORK, *Instructor.*

1-2. THE ELEMENTS OF COLLEGE ALGEBRA, TRIGONOMETRY, AND ANALYTICAL GEOMETRY. A review of the fundamental principles of high school algebra; the essential elements of college algebra; the theory and applications of plane trigonometry and the analytic geometry of the straight line and certain special curves. Mr. Perkins; Miss Kelly.

Only students who receive grades of not less than 80 in Mathematics 1-2 fulfill the equivalent of Mathematics 5-6 and may continue with Mathematics 17-18.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 6 rec.; 5 cr.

5, (5) 6. FIRST YEAR MATHEMATICS. Algebra, trigonometry and analytic geometry. Messrs. Slobin, Solt, Demos, Lewis, Giddings, Kichline, Perkins, Miss Kelly, and Miss Work.

Prereq.: See requirements of mathematics for admission to College of Technology. 6 rec.; 5 cr.

10. ASTRONOMY. A brief descriptive course. The earth as an astronomical body; the sun and the solar system; the constellations; the stars. Mr. Solt.

3 rec.; 3 cr.

15-16. A FIRST YEAR MATHEMATICS. Algebra, trigonometry, analytical geometry and differential calculus. Messrs. Slobin and Demos.

Prereq.: 3 years of high school mathematics and superior rating on college tests. 6 rec.; 5 cr.

17-18, (18). CALCULUS. Applications of differentiation and integration; special methods of integration; the definite integral, applications of the definite integral to geometry, physics, and mechanics; introduction to sequence and series. Messrs. Slobin, Solt, Demos, Lewis, Giddings, and Kichline.

Prereq. for 17: Mathematics 6 or 16. Prereq. for 18: Mathematics 16 with a grade over 75 or mathematics 17. 3 rec.; 3 cr.

20. SOLID GEOMETRY. Elements of solid geometry. Mr. Perkins, Miss Kelly.

Prereq.: High school algebra and plane geometry. 2 rec.; 2 cr.

21-22. Mathematics for Students of Agriculture. Elements of algebra, geometry and trigonometry. Mr. Bauer, Miss Work.

3 rec.; 3 cr.

23-24. General Mathematics. The elements of algebra, trigonometry and analytical geometry with applications. This course is designed for students in the College of Liberal Arts who are not majoring in mathematics. Messrs. Bauer, Lewis, Giddings, Kichline, Perkins, Miss Kelly and Miss Work.

Prereq.: One entrance unit of high school mathematics. 3 rec.; 3 cr.

25. An Introduction to the Calculus. A continuation of mathematics 23-24. The fundamental concepts of differentiation and integration with applications to geometrical and physical problems. Mr. Perkins.

Prereq.: Mathematics 23-24. 3 rec.; 3 cr.

33. Commercial Algebra. Preparation for, and introduction to mathematics of finance; use of calculating machines. This course is designed to prepare students for mathematics 34 and 61. Mr. Kichline.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 3 rec.; 3 cr.

34. Mathematics of Finance. Simple and compound interest, discount, annuities, depreciation, evaluation of securities, building and loan associations, and elements of life insurance. Mr. Kichline.

Prereq.: Either mathematics 1, 5, 22, or 33. 3 rec.; 3 cr.

45–46. Piloting, Seamanship and Navigation. A study of the rules of the road, aids to navigation, the magnetic compass, tides, currents, piloting with practice in the use of charts and tables. Plane, traverse, middle latitude, Mercator and great circle sailings and methods for determining latitude and longitude. Mr. Solt.

Elective for students interested in naval training. Prereq.: Trigonometry (for 46.) 3 rec.; 3 cr.

51-52. Advanced Calculus, Differential Equations and Their Application to Engineering Problems. Messrs. Slobin, Solt, Lewis, Demos.

Prereq.: Mathematics 18. Mathematics 51, 3 rec.; 3 cr.; mathematics 52, 1 rec.; 1 cr.

55-56. Advanced Plane and Solid Analytical Geometry. Mr. Solt, Mr. Demos.

Prereq.: Mathematics 18. 3 rec.; 3 cr. (Given in alternate years. Offered in 1943–44.)

57. The History of Mathematics. Designed especially for those preparing to teach mathematics in high school. An historical back-

ground and an appreciation of the development of various fields of mathematics. Mr. Demos.

Prereq.: Mathematics 18. 3 rec.; 3 cr.

58. Vector Analysis. Vector and scalar algebra and geometry, differentiation and differential operators, applications to electrical theory and to mechanics, dynamics, and hydro-dynamics. Mr. Solt, Mr. Lewis.

Prereq.: Mathematics 18. 2 rec.; 2 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet the needs of those social science students who are interested primarily in statistics as applied to the Social Science fields. This course is listed as Social Statistics 51. (See page 307.)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61 and 62.

61-62. Introduction to Statistical Methods. Graphical representation of statistical data, frequency distribution, averages, measures of dispersion, index numbers, linear correlation, time series. Mr. Bauer, Mr. Kichline.

Prereq.: One year of college mathematics, or its equivalent. Students who have credit for mathematics 41-42 cannot register for this course. 3 rec.; 3 cr.

63-64. Economic and Social Statistics. A continuation of 61-62, including a more thorough study of correlation, multiple and partial correlation, time series including trend and seasonal variation and cycles, sampling, variance, tests of significance. Material selected to meet the needs of advanced students and to throw light on statistical research methods. Mr. Bauer.

Prereq.: Mathematics 61-62. 3 rec.; 3 cr.

71-72. Advanced Algebra. Matrix theory, including elementary divisors and invariant factors; linear transformations; quadratic bilinear, and Hermitian forms; invariants and covariants with geometric applications; and topics from the theory of equations, including symmetric functions, and groups of substitutions. Mr. Demos, Mr. Lewis.

Prereq.: Mathematics 18. 3 rec.; 3 cr. (Given in alternate years. Not offered in 1943–44.)

Mathematics-Education (math-ed) 91. Problems in the Teaching of High School Mathematics. The aims and values of secondary school mathematics, the recommendations of the national committee on mathematics requirements, and the state board requirements; also, the subject-matter and the sequence in which it should be presented in both junior and senior high schools, and the various techniques used in teaching secondary school mathematics. Errors, testing program and remedial teaching. Lectures, assigned readings and discussions. Mr. Perkins.

Prereq.: Mathematics 18, or 34 and 17. Students preparing to teach mathematics in high school should register for this course. 3 rec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

MECHANICAL ENGINEERING

GEORGE W. CASE,* *Professor;* EDWARD L. GETCHELL, *Associate Professor;* THOMAS J. LATON, *Assistant Professor;* EDWARD T. DONOVAN,* *Assistant Professor;* E. HOWARD STOLWORTHY, *Assistant Professor;* EDWARD L. FAIRCHILD, *Assistant Professor;* LYMAN J. BATCHELDER, *Instructor;* JOHN C. TONKIN, *Instructor;* ELIAS O'CONNELL, *Instructor;* TENHO S. KAUPPINEN, *Instructor;* EDWIN P. NYE, *Instructor.*

1-2. ENGINEERING DRAWING. The fundamentals of engineering drawing, including freehand lettering, use of drawing instruments, a brief study of isometric drawing, and the solution of problems in engineering drawing by applying the principles of descriptive geometry. Messrs. Laton, Stolworthy, and Kauppinen.

Prereq.: Mechanical engineering 1 required of all technology freshmen. Mechanical engineering 2 required of civil, electrical and mechanical engineering freshmen. 2 lab.; 2 cr.

(1) MECHANICAL DRAWING. Work in lettering, the plotting and interpretation of charts and graphs, and the use of drawing instruments. Projections of machinery and simple construction problems.

Required of freshmen in hotel administration. Elective for others by permission of the instructor. 2 lab.; 2 cr.

3. MACHINE DRAWING. Application of the principles of engineering drawing to the drawing of machine parts. Various pictorial systems as an aid in sketching. Reproduction methods and modern drafting room organizations. Commercial drafting room methods are employed in sketching machine parts, drawing from sketches, and making tracings. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 lab.; 2 cr.

4. KINEMATICS. Motion in machine construction; belts and other flexible connectors; gears and gear teeth; wheels in trains; epicyclic trains; cams; instantaneous centers; linkwork, velocity and acceleration diagrams. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 rec.; 2 lab.; 3 cr.

5-6. MECHANICAL LABORATORY. An over-all view of the more elementary features of mechanical engineering. Introduction of the

* On leave of absence.

equipment in the mechanical laboratory and the university power plant, and instruction in its use for studying problems found in mechanical engineering practice. Mr. Nye.

Required of sophomores in mechanical engineering. 1 lab.; 1 cr.

7-8 MECHANICS. A study of forces and moment of forces; determination of stresses in trusses and cranes; centroids and center of gravity; rectilinear and curvilinear motion; translation and rotation of bodies; work, power and energy. The application of mechanics to the determination of stress and strain in rigid bodies. The study of thin walled cylinders; riveted joints; torsion; transverse loading of beams; deflection in beams of all kinds; study of columns; compound stresses as applied to design of machine parts. Work in the second semester to be paralleled by exercises in the materials laboratory. Mr. Getchell.

Prereq.: Mathematics 18 and physics 7. Required of juniors in mechanical engineering. Mechanical engineering 7: 4 rec.; 4 cr. Mechanical engineering 8: 3 rec.; 1 lab.; 4 cr.

9-10. MECHANICS. Similar to mechanical engineering 7-8, but with those portions having application to the design of machine parts omitted. Mr. Getchell.

Prereq.: Mathematics 18 and physics 7. Required of juniors in civil and electrical engineering. Mechanical engineering 9: 3 rec.; 3 cr. Mechanical engineering 10: 3 rec.; 1 lab.; 4 cr.

11-12. MECHANICS. Principles of mechanics as applied to architectural work. Force systems, moments, equilibrium, trusses, center of gravity and moment of inertia; tension, compression and shear; riveted joints; strength and deflection of beams; columns; reinforced concrete. Mr. Getchell.

Required of sophomore architects. 3 rec.; 3 cr.

13. ELEMENTARY METALLURGY. A study of ferrous and non-ferrous metals and alloys used in engineering; a survey of the field of metals with particular attention to structure and properties resulting from alloying and heat treatments. Mr. Getchell.

Required of juniors in mechanical engineering. 2 rec.; 2 cr.

15-16. MACHINE DESIGN. Application of the principles of mechanics to the design of machine elements with the idea of manufacturing the parts in the most economical manner in the shops. General principles of design will be followed rather than the development of any particular system of procedure. Mr. Laton.

Prereq.: Mechanical engineering 8. Required of senior mechanical engineers. 1 rec.; 2 lab.; 3 cr.

17. Heat Treatment Laboratory. The study of the heat treatment of steel to obtain the proper strength, hardness, and ductility. Methods of determining the carbon content. Study of the crystalline structure by means of the microscope to ascertain the effect of any given heat treatment and to check the carbon content. Mr. Getchell.

Prereq.: Mechanical engineering 13. Required of seniors in mechanical engineering. 1 lab.; 1 cr.

21. Heat Power Engineering. The fundamental theory of engineering thermodynamics and its applications to steam power plant and internal combustion equipment. Mr. Kauppinen.

Prereq.: Mathematics 16 or 17 and physics 8. Required of civil engineering juniors. 3 rec.; 3 cr.

22. Meteorology. Fundamental physical and thermodynamic laws and general structure of the atmosphere. Air mass theory and a brief study of the technicalities underlying forecasting of atmospheric changes. Mr. Stolworthy.

Prereq.: Physics 7 or its equivalent. Elective for all students. 2 lec.; 1 lab. (two-thirds semester); 2 cr.

23-24. Thermodynamics. The fundamental laws of thermodynamics and their relation to the operation of mechanisms using gases and vapors as their working substances. Mr. Nye.

Prereq.: Mathematics 16 or 17. Required of junior mechanical engineers. 3 rec.; 3 cr.

25-26. Heat Power Engineering. The laws of engineering thermodynamics and a consideration of steam power plant and internal combustion engine equipment. Messrs. Stolworthy and Nye.

Prereq.: Mathematics 16 or 17. Required of junior electrical engineers. 25: 3 rec.; 3 cr. 26: 3 rec.; 1 lab.; 4 cr.

27. Mechanical Laboratory. The apparatus and methods of testing power plant operation and equipment. Messrs. Kauppinen and Nye.

Parallel requirement: Enrollment in mechanical engineering 25-26. Required of junior electrical engineers. 2 lab.; 2 cr.

29-30. Mechanical Laboratory. Methods of investigating operation and testing of power plant equipment. Messrs. Kauppinen and Nye.

Parallel requirement: Enrollment in mechanical engineering 23. Required of junior mechanical engineers. 29: 2 lab.; 2 cr. 30: 1 lab.; 1 cr.

31, (31). Airplanes and Aircraft Engines. A study of airplanes and aircraft engines including servicing and operation. Mr. Stolworthy.

No prerequisite. Elective for all students. 3 rec.; 3 cr.

37. Aeronautics. Elementary aerodynamics and aircraft construction; the use of the wind tunnel. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and civil engineering 24. Alternate with automotive engineering for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

38. Meteorology and Navigation. Synoptic meteorology and the instruments and methods used in navigation of aircraft. Mr. Stolworthy.

Prereq.: Physics 7. 2 rec.; 1 lab.; 3 cr. Alternate with automotive engineering for seniors in mechanical engineering.

39. Heating and Ventilating. Heat losses and ventilation requirements of buildings, and the design of specific heating and ventilating systems. Mr. Stolworthy.

Required of seniors in mechanical engineering. 2 lab.; 2 cr.

40. Heating and Ventilating. Present methods of heating and ventilating buildings. Mr. Stolworthy.

Required of juniors in architecture in 1941–42. Required of juniors and seniors in architecture in alternate years beginning in 1943–44. Required of juniors and seniors in hotel administration in alternate years beginning in 1942–43. 1 rec.; 1 lab.; 2 cr.

41, (41). Civilian Pilot Training Ground School. A Civil Aeronautics administration controlled course covering in part aircraft operation, meteorology and navigation. Mr. Stolworthy and assistants.

Required of C.P.T. enrollees. Elective for a limited number of other students. 3 cr.

47, 48. Contribution of Engineers and Scientists to the Field of Engineering. The personal characteristics and life work of engineers and scientists. Intended for engineering students who are disqualified from military science and physical education; less reading will be required if disqualified only from the former. Mr. Kauppinen.

2 rec.; 2 cr.

49. Thesis. The thesis embodies research or commercial investigation. Equal emphasis upon composition and accuracy in subject matter.

Required of senior mechanical engineers. 1 rec.; 2 lab.; 2 cr.

52. Mechanical Laboratory. Testing of steam and gas engines in accordance with A.S.M.E. power test codes. Mr. Nye.

Prereq.: Mechanical engineering 30. Required of senior mechanical engineers. 2 lab.; 2 cr.

53-54. Power Plants. A study of the steam generating power plant dealing with its equipment and costs. Mr. Nye.

Prereq.: Mechanical engineering 24. Required of senior mechanical engineers. Mechanical engineering 53: 2 rec.; 2 cr. Mechanical engineering 54: 1 rec.; 2 lab.; 3 cr.

55-56. Automotive Engineering. The internal combustion engine including its thermodynamics, carburetion, lubrication and vibration. Some features of the design of the principal moving parts of the automotive vehicle. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and 24. Alternate with aeronautics for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

59, 60, 61, 62. Student Branch of American Society of Mechanical Engineers. An organization of junior and senior students. Preparation and presentation of addresses on mechanical engineering topics by members, and criticism by instructor of delivery, subject matter and terms used.

Required of juniors and seniors in mechanical engineering. No credit.

65. Industrial Management. Principles and methods of industrial management, designed to give students a working knowledge of modern industrial practice, with particular emphasis on the engineering viewpoint. Mr. Fairchild.

Required of mechanical engineering seniors, elective for other seniors. 3 rec.; 3 cr.

66. Engineering Economy. The principles which form the basis of engineering procedures for obtaining the highest ratio of utility to cost. Mr. Fairchild.

Elective for senior engineers. 3 rec.; 3 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

71-72. Airplane Design. Airplane layout and stress calculations. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and 37 in parallel. Not offered in 1943–44. 3 rec.; 3 cr.

78 Ext. Pre-Flight Teacher Training. An intensive course in the fundamentals of aircraft structures, aerodynamics, aircraft engines, aircraft operations, aerial navigation, meteorology and Civil Air Regulations. This course meets Civil Aeronautics Administration Standards. Mr. Stolworthy and associates.

No prerequisite. For teachers or prospective teachers of pre-flight courses or for teachers of physics. 3 rec.; 3 cr. (Registration for this course must be made through the instructor or the office of General University Extension.

This course will be offered under General University Extension during the college year and at the University as a Summer School course.)

AERONAUTICS

The courses in aeronautics offered in the Department of Mechanical Engineering are grouped below for convenience. M.E. 41, (41) will be of particular interest to students who wish to cover ground work leading to a Private Pilot certificate, M.E. 31, (31) for the Commercial Pilot certificate. M.E. 22 is designed for science or engineering students interested in meteorology. M.E. 37 and 38 are offered to mechanical engineering students wishing to specialize in aeronautics. M.E. 78 Ext. is offered for teachers who expect to teach pre-flight courses in secondary schools. Subject matter is stressed but considerable attention is paid to methods of presentation.

M.E. 22. METEOROLOGY. (2 cr.)

M.E. 31, (31). AIRPLANES AND AIRCRAFT ENGINES. (3 cr.)

M.E. 37. AERONAUTICS. (3 cr.)

M.E. 38. METEOROLOGY AND NAVIGATION. (3 cr.)

M.E. 41, (41). CIVILIAN PILOT TRAINING GROUND SCHOOL. (3 cr.)

M.E. 71-72. AIRPLANE DESIGN. (3 cr.)

M.E. 78 Ext. PRE-FLIGHT TEACHER TRAINING. (3 cr.)

MECHANICAL ENGINEERING SHOP COURSES

S1, S2, S3. ELEMENTARY SHOP PRACTICE. For shop work, freshmen in technology are divided into three groups meeting simultaneously in wood shop, machine shop and forge shop. Wood shop: pattern making and elementary foundry practice. Machine shop: practice in the operation of engine lathes and other machine tools, where precise measurements are important; the machinability of metals in the preparation of test specimens for use in the course in strength of materials. Forge shop: the operations necessary in the forging and welding of iron and steel, in the hardening, tempering, and annealing of steel. These groups interchange at the end of each twelve week period, so that all three subjects are covered during the year. (S1 is Forge Shop, S2 is Machine Shop, S3 is Wood Shop.) Messrs. O'Connell, Tonkin and Batchelder.

One semester of Elementary Shop Practice is required of all Freshmen in the College of Technology, two semesters are required for students in Architectural Engineering, Building Construction and Marketing, Electrical and Mechanical Engineering, and Physics. 2 lab.; 2 cr. per semester. (Each shop is given 1⅓ cr.)

(S4), S4. WOOD WORK. Plain cabinet making and finishing; use of stain filler, varnish, shellac, enamels, etc. Mr. Batchelder.

Elective for liberal arts and teacher training students. 2 lab.; 2 cr.

S5, (S5). Wood Shop. Practice teaching under the supervision of the instructor in wood working. Mr. Batchelder.

For seniors in industrial teacher training and education. 2 lab.; 2 cr.

S6. Wood Shop. Advanced pattern making or advanced cabinet making. Mr. Batchelder.

Prereq.: Mechanical engineering S3. For seniors in mechanical and electrical engineering and education. 2 lab.; 2 cr.

S12. Forge Shop. The forging of iron and steel. The operations of drawing, welding, upsetting, twisting, splitting and punching of iron; the hardening, tempering, and annealing of steel; and the case hardening of mild steel as adapted to agricultural work. Mr. O'Connell.

Elective for students in agricultural teacher training curriculum. 2 lab.; 2 cr.

S13, (S13). Forge Shop. Advanced work in forging, electric and acetylene welding, tempering, case hardening, tool dressing. Mr. O'Connell.

Prereq.: Mechanical engineering S1. For seniors in industrial teacher training curriculum. 2 lab.; 2 cr.

S17, (S17). Machine Shop. Continuation of work given in S2. Mr. Tonkin.

Prereq.: Mechanical engineering S2. Required of sophomores in Mechanical Engineering. 2 lab.; 2 cr.

S19-S20. Machine Shop. Advanced work on the lathe, milling machine, planer, shaper and turret lathe, involving making of tools and special machinery and apparatus. Mr. Tonkin.

Prereq.: Mechanical engineering S17. 2 lab.; 2 cr.

S21, (S21). Machine Shop. Manufacturing. The appreciation and measurement of skill, production methods, shop management and time study. Mr. Tonkin.

Prereq.: Mechanical engineering S20. 2 lab.; 2 cr.

S23. Farm Shop. A short course in general shop work to suit the individual needs of agricultural teacher preparation juniors. Adjusted to meet previous experience in shop work. Mr. Tonkin and Mr. O'Connell.

Limited to agricultural teacher preparation juniors. 2 lab.; 2 cr.

S29-S30. Individual Projects. Students and other qualified persons may work in the shops on projects of their own selection. It is required that the project receive the approval of the instructor in the particular shop to be used and be supervised by him.

Prereq.: M.E. S1, S2, or S3 or its equivalent. Hours and credits to be arranged.

MILITARY SCIENCE

MEDICINE

(See PRE-MEDICINE, pages 141–142 and 156.)

METEOROLOGY

(See pages 127 and 255–256.)

MILITARY SCIENCE AND TACTICS

COLONEL EDWIN K. SMITH, *Coast Artillery Corps, Professor;* LIEUTENANT COLONEL TED H. CAWTHORNE, *Infantry, Associate Professor;* MAJOR GEORGE W. GAGE, *Coast Artillery Corps, Assistant Professor;* MAJOR HENRY HUNT, *Infantry, Assistant Professor;* CAPTAIN MALCOLM J. CHASE, *Coast Artillery Corps, Assistant Professor;* CAPTAIN CLARENCE W. METCALF, *Infantry, Assistant Professor;* MASTER SERGEANT FRED H. BROWN, *Assistant;* STAFF SERGEANT JOSEPH E. NARBUT, *Assistant;* SERGEANT PHILLIP J. WHELAN, *Assistant.*

BASIC COURSE, INFANTRY

1-2. MILITARY FUNDAMENTALS. Organization of the army and infantry; military discipline, courtesy and customs of the service; military history and policy; National Defense act and the R.O.T.C.; military obligations of citizenship; military sanitation and first aid; weapons, rifle marksmanship; map reading; leadership; drill and ceremonies. Captain Clarence W. Metcalf.

Required of freshmen. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

3-4. SECOND YEAR, BASIC. Weapons, scouting and patrolling, musketry, combat principles, leadership, drill and ceremonies. Major Henry Hunt and Captain Clarence W. Metcalf.

Required of sophomores. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, INFANTRY

5-6. FIRST YEAR, ADVANCED. Weapons, aerial photograph reading and interpretation, combat training, estimate of the situation and combat orders, combat principles, administration, motor vehicles, defense against chemical warfare, field fortification, leadership, drill and ceremonies. Major Henry Hunt.

Prereq.: Military Science 4. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

7-8. SECOND YEAR, ADVANCED. Military history and policy; property, procurement and funds; O. R. C. Regulations; combat intelligence; signal communications; mechanization, tanks, anti-aircraft defense; military law; tactics of the company; methods of instruction; leadership; drill and ceremonies. Lieutenant Colonel Ted H. Cawthorne.

Prereq.: Military Science 6. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

BASIC COURSE, COAST ARTILLERY

9-10. MILITARY FUNDAMENTALS. Organization of the army and the coast artillery; military discipline, courtesies and customs of the service; military history and policy; the National Defense act and the R.O.T.C.; military obligations of citizenship; rifle marksmanship; map reading; coast artillery ammunition, weapons and material; military sanitation and first aid; leadership; drill and ceremonies. Captain Malcolm J. Chase.

Required of freshmen in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

11-12. SECOND YEAR, BASIC. Fire control and position finding for seacoast artillery; characteristics of naval targets; rigging; basic gunnery; fire control and position finding for anti-aircraft artillery; weapons and material; operation and maintenance of motor transportation; leadership; drill and ceremonies. Captain Malcolm J. Chase.

Prereq.: Military Science 10. Required of sophomores in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, COAST ARTILLERY

13-14. FIRST YEAR, ADVANCED. Map and aerial photograph reading; gunnery, fire control and position finding for seacoast and anti-aircraft artillery; administration; defense against chemical warfare; signal communication-coast artillery; orientation; leadership; drill and ceremonies. Major George W. Gage.

Prereq.: Military Science 12. 3 rec.; 1 drill; or 5 rec., according to season; 3 cr.

15-16. SECOND YEAR, ADVANCED. Military history and policy; military law, (a) law of military offenses, (b) court martial; property, emergency procurement and funds; mechanization; Officers Reserve Corps regulations; leadership, drill and command; ceremonies; tactics and technique of seacoast artillery; tactics and technique of anti-aircraft artillery; field fortifications; combat orders and solution of problems; orientation, topographical operation required for artillery firing. Major George W. Gage.

NOTE.—Subjects common to both coast artillery and infantry in courses 7-8 and 15-16 are combined and taught by Lieutenant Colonel Ted H. Cawthorne, Infantry, and Major George W. Gage.

Prereq.: Military Science 14. 3 rec.: 1 drill; or 4 rec., according to season; 3 cr.

MUSIC

BJORNAR W. BERGETHON, *Associate Professor and Head of Department;* ROBERT W. MANTON, *Professor;* CHARLES W. TRITT,* *Instructor;* DOROTHY E. KLINE, *Instructor;* RUTH E. MCDANIEL, *Instructor;* WESLEY COPPLESTONE, *Assistant;* LORRAINE CRITTENDON, *Graduate Assistant.*

* On leave of absence.

MUSICAL ORGANIZATIONS

All the university musical organizations are under the direction of Mr. Bjornar W. Bergethon to whom inquiries in regard to these organizations should be addressed.

Registration for these courses should be completed during the registration period. These courses cannot be used to satisfy major requirements.

1, (1). UNIVERSITY BAND. Open to all undergraduates on basis of individual try-outs. The university band furnishes music for the R.O.T.C. drills, all athletic events at home, and also gives several concerts during the college year.

Prereq.: Permission of the instructor. 2 rec.; 1½ cr.

3M, (3M). MEN'S GLEE CLUB.

3W, (3W). WOMEN'S GLEE CLUB. Open to all students interested in singing who fulfill the requirements of a try-out.

Prereq.: Permission of the instructor. 2 rec.; 1 cr.

5, (5). UNIVERSITY CHOIR. An advanced choral group devoted to the study and performance of the best classical and modern choral literature.

Prereq.: Permission of the instructor. 3 rec.; 1 cr.

7, (7). ENSEMBLE. Small groups of instrumentalists and vocalists organized to provide advanced students experience in such groups as the Madrigal Singers, the string quartet, the men's quartet and the women's sextet.

Prereq.: Permission of the instructor. 2 rec.; 1 cr.

9, (9). UNIVERSITY ORCHESTRA. Open to all students on basis of individual try-outs. The orchestra gives several concerts during the year and also accompanies the vocal groups and solo instrumentalists on various occasions.

Prereq.: Permission of the instructor. 2 rec.; 1 cr.

APPLIED MUSIC

Lessons in applied music are based on one-half hour private instruction. One semester hour of credit will be given for one lesson and four hours of practice a week; two semester hours of credit will be given for one lesson and eight hours practice a week; and three semester hours of credit will be given for two lessons and ten hours practice a week. The special semester fee for applied music is $25 for one and $50 for two lessons a week. These fees include the use of a practice room for the required preparation. Organ students will be charged an additional fee for the use of the practice organ.

Registration in applied music is subject to approval by the Head of the Music Department.

23, (23). PIANO. The methods of presentation and the material used vary with the particular needs of each individual pupil. For some stu-

dents it will be necessary to intensify the technical side of playing, since an inadequate technique obviously is a handicap to a successful expression of musical thought. A number of pieces from the best masters will be studied for the purpose of applying principles of technique as well as gaining for the student an insight into the possibilities of musical expression. Miss Kline and Miss McDaniel.

1 or 2 lessons; 1–3 cr.

24, (24). ORGAN. The instruction requires that the pupil have an adequate background of pianistic ability. It includes a fundamental study of the manual touch, pedal technique, the independence of the hands and feet, and elementary and advanced registration. In addition to the normal course of organ study, sight reading, modulation, and improvisation will be emphasized. Miss Kline.

1 or 2 lessons; 1–3 cr.

25, (25). VIOLIN. Lessons in violin playing are adjusted to the individual needs of the pupil. A sound technical foundation is imparted with special stress on clear, resonant tone production, accurate intonation, fluency, and velocity. Technical exercises, studies, and solos are selected to correct the pupil's deficiencies and to develop and promote his talents and artistic self-expression. Solos are selected from the best of violin literature and are studied as concert pieces and also as applications of the numerous items of basic technique. Miss Crittendon.

1 or 2 lessons; 1–3 cr.

26, (26). VOICE. Instruction in voice will seek to develop those qualities which are essential for intelligent interpretation, such as correct posture, breathing, pure tone, resonance, clear enunciation, and technical facility. Each voice is given the treatment best suited to its individual needs. A higher ideal than the perfection of mere mechanical skill is sought, namely, a musicianly style of singing and a thorough appreciation of the best works of the masters, both classic and modern. Mr. Copplestone.

1 or 2 lessons; 1–3 cr.

27, (27). VIOLONCELLO. The 'cello is in demand as an orchestral ensemble and solo instrument. The course offered consists of instruction in tuning, bowing, and in positions, as well as a thorough grounding in technical studies, solos and ensemble literature. Miss Crittendon.

1 or 2 lessons; 1–3 cr.

28, (28). WOODWIND. Courses in the technique and literature of clarinet, flute, oboe, bassoon, and saxophone are given.

1 or 2 lessons; 1–3 cr.

29, (29). BRASS. Instruction will be offered for any of the following instruments: trumpet, trombone, French horn, baritone and tuba. Correct tone production, articulation, and musical interpretation are stressed. Miss Kline.

1 or 2 lessons; 1–3 cr.

THEORY AND COMPOSITION

11, (12)-(11), 12. Elements of Music. Designed to familiarize the student with the elements of music and to give him a general appreciation of pitch, rhythm, and harmony. Sight singing and rhythmic, melodic, and harmonic dictation. Music notation and terminology.

Recommended to students who wish to prepare themselves for intelligent listening to music and for participation in musical activities such as glee clubs, etc. Mr. Manton.

Open to all students. Required of all music majors. 3 rec.; 3 cr.
This course cannot be used to satisfy major requirements.

21-22. Harmony and Beginning Counterpoint. Designed to supplement the technical training begun in music 11-12. Seventh chords, altered chords, suspensions, modulation, imitation, analysis and the five orders of simple two-part counterpoint together with the commencement of composition in the smaller forms constitute the course content. Mr. Manton.

Prereq.: Music 11-12. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

51. Counterpoint. (Formerly Music 31-32.) Three- and four-part counterpoint, the free harmonization of chorals and melodies, double counterpoint, imitative counterpoint, together with beginnings of canonic and fugal writing. Composition will include the writing of inventions, choral preludes and simple forms of free instrumental composition. Mr. Manton.

Prereq.: Music 21-22. 3 rec., 3 cr. (Not offered in 1943–44.)

52. Composition. (Formerly Music 41-42.) Elementary composition in the smaller forms. Designed to furnish thorough training in detail relating to sentence formation, two- and three-part forms, the variation forms, and the various rondo forms up to sonata form. This course requires knowledge of harmony and counterpoint and proficiency in pianoforte playing. Mr. Manton.

Prereq.: Music 51. 3 rec., 3 cr. (Not offered in 1943–44.)

53. Orchestration. (Formerly Music 35-36.) Designed to ground the student in the idiomatic writing and technique necessary to score effectively for the modern symphony orchestra and the band. The characteristics and tone quality of the instruments; transcriptions with various combinations — strings, wind and brass. Mr. Bergethon.

Prereq.: Music 21-22. Required of students completing the Music Education curriculum. 3 rec., 3 cr.

54. Conducting. (Formerly Music 43-44.) The technique of the baton; simple and complex rhythms; specific problems from various choral and symphonic works; score reading; problems of choral and instrumental technique will be discussed. Mr. Bergethon.

Prereq.: Music 53. Required of students completing the Music Education curriculum. 3 rec., 3 cr.

HISTORY, LITERATURE AND APPRECIATION

13, 14. The Appreciation of Music. Fundamentally a course to develop intelligent listening through formal analysis of the irreducible minimum of great musical masterpieces. A knowledge of the development of musical form is essential to the thorough understanding and appreciation of the works of the great composers as embodied in their symphonies, overtures, sonatas, symphonic poems, etc. A selection of the most important works of Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Schumann, Mendelssohn, Chopin, Liszt, Brahms, Franck, Tschaikowsky, d'Indy and many others, analyzed by the students and the instructor and played several times, in the classroom. Mr. Manton.

This course cannot be used to satisfy major requirements.
Open to all students. 3 rec.; 3 cr.

37-38. Music History and Literature. Early music and classicism. An intensive study of the actual systems, spirit and content of the music of the period rather than résumés of biography and critical evaluations. Music of Greece and Rome, the early church, evolution of notation, beginnings of harmony and counterpoint, the Troubadours and Minnesingers, the Netherland and Roman masters of church music, the secular music of the English Madrigalists, beginnings of instrumental music, and opera and oratorio, etc., through the classic composers to Schumann. Lectures, readings and reports. Mr. Manton.

Prereq.: Music 11-12 or 13, 14. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

47-48. Music History and Literature. Romanticism and modernism in music. This course supplements music 37-38 and continues the study of the great romantic composers and their works, the neo-classicism of Brahms and Franck, d'Indy, etc., and on into the twentieth century with special emphasis upon the works of such composers as Debussy, Ravel, Sibelius, Delius, Vaughan Williams, Stravinsky, Hindemith and many others. Contemporary values, gains, losses and shifts of emphasis and the continuity of musical thought will be brought out and every attempt made to adjust the listener's ear to the new music. Lectures, readings and reports. Mr. Manton.

Prereq.: Music 11-12 or 13, 14. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

MUSIC EDUCATION

The department of music offers a four-year curriculum for teachers and supervisors of school music (see pages 165–166 and 175).

Music-Education (mu-ed) 91. Problems in the Teaching of Elementary School Music. Aims, scope, and organization of materials and activities in the elementary schools in keeping with modern trends in educational philosophy. Particular attention will be given to the

child voice, its care and development. A thorough study and demonstration of materials and methods for the various grades will be made. Observation of elementary school music. Mr. Bergethon.

Prereq.: Music 11-12. Required of students completing Music Education curriculum. 3 rec.; 3 cr.

MUSIC-EDUCATION (MU-ED) 92. PROBLEMS IN THE TEACHING OF SECONDARY SCHOOL MUSIC. The application of principles of education to the music curriculums of the junior and senior high school. Consideration will be given to the adolescent voice and the classification of voices; the selection of materials for study, performance, and discriminative listening; and building a course of study on student needs and interests. Observation of music programs in secondary schools. Mr. Bergethon.

Prereq.: Mu.-Ed. 91. Required of students completing the Music Education curriculum. 3 rec.; 3 cr.

MUSIC-EDUCATION (MU-ED) 95. THE TEACHING OF STRINGED INSTRUMENTS. A demonstration course in class-teaching of stringed instruments designed to simulate classroom situations and methods as far as possible. Problems of the school orchestra will be discussed. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

MUSIC-EDUCATION (MU-ED) 96. THE TEACHING OF WOODWIND INSTRUMENTS. A study of correct tone production and technique of woodwind instruments. Materials and procedures for class and individual instruction will be emphasized. Consideration of the school band as a concert organization will be given. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

MUSIC-EDUCATION (MU-ED) 97. THE TEACHING OF BRASS AND PERCUSSION INSTRUMENTS. A study of correct tone production and technique of brass instruments and of rudimentary percussion technique. Materials and procedures for class and individual instruction will be emphasized. Consideration will also be given to the school band as a marching unit and to elementary instruction in drum-majoring. Mr. Bergethon.

Prereq.: Permission of the instructor. Required of students completing the Music Education curriculum. 2 rec.; 2 cr.

NATURE STUDY

(See BIOLOGY, pages 114 and 213–218.)

NURSING

(See pages 140 and 153.)

OCCUPATIONAL THERAPY

(See pages 140–141 and 154–155.)

ORAL ENGLISH

(See pages 244, 245, 247, 248.)

PAINTING

(See THE ARTS, page 209.)

PHILOSOPHY

(See HISTORY, pages 263–264.)

PHOTOGRAPHY

(See THE ARTS, pages 210 and 211.)

PHYSICAL EDUCATION FOR MEN

CARL LUNDHOLM, *Professor, Director of Physical Education and Athletics;* HENRY C. SWASEY, *Associate Professor;* PAUL C. SWEET, *Associate Professor;* CHARLES M. JUSTICE, *Assistant Professor;* EDWARD J. BLOOD, *Instructor;* ANTHONY DOUGAL, *Assistant Professor.*

All undergraduate male students are required to participate a minimum of 3 one-hour class periods each week in a program of physical education. This program is designed to prepare men physically for training in the military services. Students will be informed of the content and requirements of the program on registration.

TEACHER PREPARATION COURSES

Required of students registered in the university physical education teacher preparation curriculum for men. Elective for other students by special permission from the director of physical education and athletics.

23. PRINCIPLES OF PHYSICAL EDUCATION. The aims, objectives and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

3 lec.; 3 cr.

40. WINTER SPORTS. Instruction and practice in ski jumping, downhill, slalom and cross country skiing and snowshoeing. Conditioning of men, waxing of skis and selection and care of equipment. The organization and management of winter carnivals and other competitions. Special emphasis on methods of teaching skiing.

2 rec.; 2 cr.

45. FOOTBALL. A history of football with consideration of its educational implications and an analysis of the various systems of play. Instruction in team and individual offensive and defensive fundamentals.

The rules, theory, strategy, generalship of team play and the responsibilities of the coach for the physical welfare of the team.

2 rec.; 2 cr.

46. Baseball. Theoretical and practical consideration of the basic principles of batting and fielding; the fundamentals of each position; special stress on problems involving team play, coaching methods, physical conditioning and rules; a history of the game with a consideration of its educational values.

2 rec.; 2 cr.

47. Track and Field Athletics. Instruction and practical demonstrations in starting, sprinting, middle distance and distance running, relay racing, hurdling, high and broad jumping, pole vaulting, shot putting, discus, hammer and javelin throwing. Methods of preparing contestants for the various events.

2 rec.; 2 cr.

48. Basketball. History of basketball with a consideration of its educational values. Theory and practice in the fundamentals of individual offense and defense. The various styles of team offense and defense and rules of the game. Problems in handling and conditioning a team.

2 rec.; 2 cr.

61. Problems of Teaching in Physical Education. Methods and materials of instruction, theories of play and actual practice for the successful teaching of recreational activities in school, on the playground and in the community. Studies of activities adapted to different levels of maturity.

3 rec.; 3 cr.

63. Care and Prevention of Injuries. Nature and causes of injuries incident to physical activities, the common hazards of play, and preventative measures for children and athletes are discussed. First aid principles are presented. Elective for seniors who have taken one of the following: Physical education 40, 45, 46, 47, 48.

2 rec.; 2 cr.

65. Administration of Physical Education in Secondary Schools. The aims and objectives of health and physical education. Organization and supervision of a complete unified program of health and physical education including the legal aspects, intra-mural and interscholastic athletics, medical problems, budgeting, financing, maintenance of equipment, publicity programs and office management. Each student will be given an opportunity to serve on a committee to draw up an original program of health and physical education in a theoretical or actual situation found in some secondary school. Mr. Lundholm.

Prereq.: Zoölogy 17, 18; physical education 23 and 61; and two courses in the coaching of sports. These last may be taken concurrently. 3 rec.; 3 cr.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93 (93). DIRECTED TEACHING IN PHYSICAL EDUCATION. Given in the department of physical education and athletics for men.

Prereq.: Zoölogy 17, 18; physical education 23, and 61 or 35. The student must have completed the methods course in the sport which he is directing or take the course concurrently. 2 to 4 cr.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 94. SUPERVISED TEACHING IN PHYSICAL EDUCATION IN THE FIELD. An opportunity under joint supervision of the physical education and education departments, to coach athletics in secondary schools and to assist in supervising a recreational program.

Prereq.: Zoölogy 17, 18; physical education 23, 65 and 35 or 36, methods courses in those sports in which the student intends to become actively engaged. 2 to 4 cr.

PHYSICAL EDUCATION FOR WOMEN

MARGARET R. HOBAN, *Assistant Professor and Director;* MARION BECKWITH, *Instructor;* NELL W. EVANS, *Instructor;* MARGUERITE MOCHEL, *Instructor;* CAROLINE S. WOOSTER, *Graduate Assistant.*

During wartime the aim of the Department of Physical Education for Women is physical fitness and morale through the development of strength, endurance, flexibility, relaxation, body control, habits and practices of health and recreation.

REQUIREMENTS. Freshman women are required to take physical education 1, 2. Every woman student must take at least one course of physical activity each semester of her freshman, sophomore, and junior years. One additional activity or an academic course within the department may be elected each semester for additional credit. Except in special cases, the same activity shall not be credited more than twice.

Each student must, upon entering, have a physical examination by the university physician and a posture test by the physical education staff. Quarterly activities elected by students are approved by the department on the basis of the results of these examinations. Students unfit for physical education activities are assigned theoretical work in hygiene.

In addition to the activities offered in the regular program, students may enroll in extracurricular clubs in fencing, badminton, bowling, and modern dance.

Women students following any teacher training curriculum in the university are urged to elect for required physical education the following activities: Folk dancing, community games, speedball, hockey, basketball, conditioning, stunts and tumbling.

REQUIRED COSTUME AND EQUIPMENT. Special gymnasium uniform consists of blue cotton shorts and shirt, cotton fleece warm-up suit, white

anklets and regulation gymnasium shoes. Students are required to furnish their own individual equipment for such activities as tennis, modern dancing, individual gymnastics, skiing and skating. For riding, there is a charge of 85 cents a class meeting.

1, 2. PHYSICAL EDUCATION. The art of healthful living. Problems of health, personal appearance, conduct and personality. Activity classes scheduled as follows:

First semester. Basic war program: (a) conditioning or (b) rhythmics. Two hours a week. Supplementary program: folk dancing, hockey, speedball, archery, soccer, riding, individual gymnastics, community games, modern dancing, basketball, skating. One hour a week.

Second semester. Basic war program: (a) conditioning or (b) rhythmics. Two hours a week. Supplementary program: American country dancing, community games, tap dancing, dramatic dancing, stunts and tumbling, basketball, skiing, skating, individual gymnastics, archery, modern dancing, riding. One hour a week.

(Consult course time and room schedule for division of activities according to the season of the year.) Individual gymnastics is required of each freshman whose physical condition indicates this need.

Required of all freshmen. 1 lec. or rec.; 3 lab. periods; 2 cr.

3, 4. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Required of sophomores. 3 periods; 1 cr.

5, 6. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Required of juniors. 3 periods; 1 cr.

7, 8. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to seniors. 3 periods; 1 cr.

11, 12. PHYSICAL EDUCATION. Elective courses open to freshmen may be chosen from the list under physical education 1, 2.

2 periods; 1 cr.

13, 14. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to sophomores. 2 periods; 1 cr.

15, 16. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to juniors. 2 periods; 1 cr.

17, 18. PHYSICAL EDUCATION. Elect courses from the list under physical education 1, 2.

Open to seniors. 2 periods; 1 cr.

MAJOR COURSES

23. Principles of Physical Education. The aims, objectives, and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

3 lec.; 3 cr.

55. Remedial Gymnastics. The adaptation of exercise to individual needs, capacities, and limitations; physical abnormalities and their correction. Miss Hoban.

Prereq.: Zoölogy 17, 18, 2 lec. or rec.; 2 lab.; 3 cr.

63, 64. The Theory and Coaching of Sports for Women. The principles involved in the teaching of team games and individual sports with emphasis on coaching methods and officiating. Miss Evans.

2 lec. or rec.; 4 lab.; 3 cr.

66. Administration of Physical Education in Secondary Schools. Administrative relationships and procedures in the conduct of physical education and health education in the secondary schools. Preparation of general administrative policies; facilities and equipment. Miss Hoban.

3 lec.; 3 cr.

(P-E) 91. Problems in the Teaching of Physical Education for Women. The organization of a comprehensive program of activities for use from the primary grades through college. Miss Hoban.

3 lec. or rec.; 2 lab.; 4 cr.

ELECTIVE COURSES OPEN TO ALL STUDENTS INTERESTED IN HEALTH, PHYSICAL EDUCATION AND RECREATION

24. Organized Camping. The methods, objectives and purposes of organized camping for groups; standards for organized summer camps, facilities, equipment, food sanitation, health and safety requirements necessary for organized camps; camp departments, programs, and camp leadership qualifications. Miss Hoban.

3 lec.; 3 cr.

(36), 36. Recreation Leadership. (Formerly given as 36, *Play and Recreation.*) Philosophy of recreation, organization and administration of social recreation, clubs, and playgrounds; recreation as therapy, application of recreation to wartime situations. Miss Hoban.

3 lec.; 3 cr.

(P-E) 92. Directed Teaching of Physical Education for Women. Opportunity for teaching of physical education activities under direction in the elementary and secondary schools. Miss Hoban.

Prereq.: (P.E.) 91. Open to seniors. 1 lec. or rec.; 2 lab.; 2 cr.

PHYSICS

HORACE L. HOWES, *Professor;* RAYMOND R. STARKE, *Professor;* FREDERICK D. BENNETT, *Assistant Professor;* HARRY H. HALL,* *Assistant Professor;* GREGORY K. HARTMANN,* *Assistant Professor;* WILLIAM H. HARTWELL, *Assistant Professor;* HAROLD I. LEAVITT, *Assistant Professor;* CARL W. STEMPIN, *Instructor;* CLEON H. HATCH, *Assistant.*

Instruction in physics is given primarily by recitations and laboratories with frequent lectures, examinations, written reports and personal conferences. The aim of the department is to develop student minds capable of doing independent thinking in the science. There is a well-chosen collection of apparatus for use in laboratories and lectures.

1, 2. INTRODUCTORY PHYSICS. Mechanics; properties of matter; heat; magnetism; electricity; wave motion; sound and light. Demonstration lectures, laboratory and recitation. Messrs. Hartwell, Bennett and Hatch.

Required of students in architecture. Elective for liberal arts students. A knowledge of high school algebra and plane geometry is essential. 2 lec.; 1 rec.; 1 lab.; 4 cr.

4. ELEMENTS OF PHYSICS. A brief treatment of mechanics and heat; followed by studies in light and electricity. A working knowledge of arithmetic, algebra, and plane geometry is essential. Mr. Starke.

Required of sophomores in agriculture. 2 lec.; 1 rec.; 1 lab.; 4 cr.

5-6. PRE-MEDICAL PHYSICS. This course is identical with physics 1, 2 (Introductory physics), having the same lectures and recitation. In a separate laboratory, however, special attention is paid to the needs of students in preparation for medical work, such as the presentation of data in graphical form, and the manipulation of physical apparatus. Mr. Hartwell.

Required in the pre-medical curriculum. Elective for other students. 2 lec.; 1 rec.; one 3 hr. lab.; 5 cr.

7-8. GENERAL PHYSICS. Mechanics and properties of matter; heat; selected topics in sound and light; electricity and magnetism. Messrs. Howes, Leavitt, Stempin.

Prereq.: Mathematics 3 or 6 in advance, and mathematics 17-18 either in parallel or as a prerequisite. Required of sophomores in chemical, civil, electrical and mechanical engineering curriculums. Elective for those liberal arts students who have passed physics 1, 2 and have the prerequisites in mathematics. 1 experimental lec.; 3 rec.; 3 cr.

9. GENERAL PHYSICS LABORATORY. Open only to students studying, or credited with physics 7. Experiments in mechanics and properties of matter, with report writing and curve plotting of data. Appreciation

* On leave of absence.

of the laws of physical science; the development of laboratory technique, and the estimation of the limitations of scientific experimentation. Messrs. Howes, Leavitt, Stempin.

Prereq.: The same as those for physics 7-8. Required of sophomores in chemical, civil, electrical and mechanical engineering curriculums. Elective for liberal arts students under the same conditions as physics 7-8. 2 lab.; 3 cr.

10. General Physics Laboratory. A continuation of physics 9 to include experiments in heat, sound, light, electricity and magnetism. Messrs. Howes, Leavitt, Stempin.

Prereq.: Physics 7 and 9. Physics 8 in parallel or as a prerequisite. Required of students in chemical, civil, mechanical and electrical engineering curriculums. Elective for liberal arts students. 2 lab.; 3 cr.

15. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the earth as an astronomical body and our neighbors in space; the origin of the solar system; the universe as a whole; the nature of matter and energy, heat, light, sound, electricity, radiant energy and atomic structure. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies, and the foreign languages, who may elect this course and physics 16 to meet their physical science requirements for the degree. 3 lec. or rec.; 3 cr.

16. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the constitution of matter, physical changes, chemical changes, communication, the uncontrolled changes or geological evolution of our physical environment, the climate and weather. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies and the foreign languages. 3 lec. or rec.; 3 cr.

41-42. Intermediate Physics. A general survey of physics in which free use is made of the methods of calculus. The course is designed to introduce the student to the topics of mechanics, heat, light, sound and wave motion in a more rigorous manner than is possible in the elementary presentations. Mr. Bennett.

Prereq.: Mathematics 17-18; physics 1, 2 or physics 7, 8. Required course for liberal arts majors in physics. 2 lec.; 1 rec.; 3 cr.

51. Theory of Electrons. The theory of electricity including the passage of a current through a gas, the mobility of ions, the determination of charge and mass of the electron, ionization by collision, the corona discharge, cathode rays, positive rays, thermionic emission, photo-electricity and X-rays. Mr. Howes.

Prereq.: Physics 7-8; mathematics 17-18. Required of seniors in electrical engineering. Open to juniors or seniors in liberal arts on same conditions. 2 lec.; 2 cr.

54. Acoustics. The principles of sound origins, propagation, and reception applied. Lectures and recitations. Mr. Howes or Mr. Stempin.

Prereq.: Physics 1, 2 for architects; physics 8 and 10 for others. Required for seniors in architecture. 3 lec.; 3 cr. (Given in alternate years. Art given in 1943–44.)

55. Experimental Physics. Designed to augment the student's knowledge of the theory and performance of optical instruments; to improve his laboratory technique in precision measurements. The fundamental physical theories underlying the phenomena of refraction, interference, diffraction and polarization will be discussed in the lecture periods. Messrs. Bennett, Hartwell.

Prereq.: Physics 1, 2, 7, or 8; mathematics 17-18. 2 lec.; 1 lab.; 4 cr.

56. Modern Experimental Physics. Measurement of the charge on the electron by the Millikan oil drop method; of $\frac{e}{m}$ by cathode ray deflection; of Planck's constant by the investigation of photoelectric cells and various other quantities will be taken up. The first portion of the laboratory work is planned to acquaint the student with the laboratory techniques of modern physics. A part of the course will consist of a development project for each student. Mr. Bennett.

Prereq.: Physics 1, 2; Mathematics 17-18. 2 lec.; 1 lab.; 4 cr.

*57-58. Introduction to Theoretical Physics. Equations of motion in particle dynamics and typical problems; simple harmonic motion; small oscillations; damped and forced oscillations; some rigid dynamics; normal coördinates; vibrating string; elasticity; heat flow; electrostatics; potential theory; energy in electromagnetic field; waves; dispersion; Huygens' principle. Mr. Bennett.

Prereq.: Mathematics 17-18; either physics 1, 2 or physics 7, 8; physics 41, 42 or equivalent. 2 lec.; 1 rec.; 3 cr.

*61. Electricity and Magnetism. Intended to give a theoretical background for the understanding of electrical phenomena, and a foundation for the study of electrical measurements. Electrostatics, magnetostatics, Kirchoff's laws, fields associated with currents, alternating currents, complex impedance, free and forced oscillations of a simple circuit, thermoelectricity, characteristics of vacuum tubes. Mr. Bennett.

Prereq.: Physics 7-8; mathematics 17-18. Required of seniors in physics and chemistry. 3 lec.; 3 cr.

64. Electrical Measurements. Experiments on the use of precision potentiometers, the constants of sensitive galvanometers, low

* Course to be given at the discretion of the head of the department.

resistance by the Kelvin double bridge, high resistance by the method of leakage and by direct deflection, the use of alternating current bridges for measuring capacity, self and mutual inductance and frequency, the characteristics of certain photoelectric cells. Mr. Hartwell.

Prereq.: Physics 8 and 10. Required of students in electrical engineering and physics. 1 lec.; 1 lab.; 3 cr.

*65-66. Molecular Physics. An introduction to kinetic theory of gases, thermodynamics, and statistical mechanics as applied to physical and chemical problems. Mr. Bennett.

Prereq.: Physics 1, 2 or physics 7, 8; mathematics 17-18. 3 lec.; 3 cr.

71-72. Physics Seminar. Selected subjects in modern and classical physics are discussed before the seminar. Each student presents at least one paper per semester. Staff.

Prereq.: Mathematics 17-18; physics 7, 8; general scientific maturity. Required of seniors in physics. 1 lec.; 1 cr.

73-74. Thesis. A topic for experimental investigation will be assigned each student and a thesis covering the reading and the observations will be required. Staff.

For seniors in physics who have completed physics 41, 42 or equivalent.

General Science—Education (gen. sci.-ed.) 91. Problems in the Teaching of General Science. Units of subject matter presented in the form of lecture-demonstrations and discussions, accompanied by assigned readings. The objectives and methods of teaching general science developed with the subject matter presentations. Opportunity for students to participate in the lecture demonstrations. Mr. Leavitt.

3 lec. or rec.; 3 cr.

For courses primarily for graduate students; see catalog of the Graduate school.

POLITICAL SCIENCE

(See Government, pages 132–133 and 256–258.)

POULTRY HUSBANDRY

T. Burr Charles, *Professor;* Fred E. Allen, *Assistant Professor;* Alan C. Corbett, *Instructor;* Richard C. Ringrose, *Instructor.*

5. Farm Poultry. The general principles of poultry husbandry and their practical applications with emphasis on factors of culling, breeding, housing, feeding, marketing, diseases and parasites, incubation and management. Mr. Charles, Mr. Ringrose.

Required of sophomores in agriculture. Paired with forestry 1; one half-semester. 3 lec.; 1 lab.; 2 cr.

* Course to be given at the discretion of the head of the department.

16. Poultry Breeding. The genetic principles involved in breeding for egg production, including practical application and demonstration. Mr. Charles, Mr. Ringrose.

Required of all juniors in poultry. Elective for others. 2 lec.; 2 cr.

17. Poultry Breeds and Judging. The origin, history and classification of breeds. Theory and practice in judging fowls for egg production and exhibition and for intercollegiate contests. Mr. Ringrose.

Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

18. Incubation and Brooding. The principles involved in incubation and brooding of poultry; embryonic development. Students individually operate incubators and care for groups of chicks. Mr. Charles.

Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

19. Poultry Marketing. The preparation of poultry and eggs for market. Egg qualities and grades, candling and packaging; egg and poultry market conditions; practical instruction in killing, picking and dressing. Mr. Ringrose.

Required of all seniors in poultry. Elective for others. 2 lec.; 2 cr.

20. Poultry Feeding. The principles of feeding; analysis of recent experimental work and current feed problems. Each student will care for a group of birds for several weeks for practical observation and collection of data. Mr. Ringrose.

Prereq.: Poultry husbandry 5. Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

21. Poultry for Teachers. For teacher preparation students only. Mr. Charles.

Hours to be arranged. 2 cr.

22. Poultry Housing. Design and construction of poultry houses and equipment; costs of materials; management principles. Mr. Charles.

Required of seniors in poultry. Elective for others. 1 lec.; 1 lab.; 2 cr.

23. Poultry Management. The application of successful business principles to poultry farming; study of surveys and production costs. As a part of the laboratory work, a detailed "three year" development plan of a poultry farm will be studied. Mr. Charles, Mr. Ringrose.

Prereq.: Poultry husbandry 5. Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

24. Poultry Practice. Practical work at the university poultry plant in the hatching, rearing and care of chickens. Mr. Charles.

Required of all juniors in poultry. Ten hours of practical work. 4 cr. (Note.—By permission, students with previous practical poultry experience may substitute 4 semester credits of electives for this course.)

25. Poultry Diseases. The anatomy of the fowl; diseases and parasites encountered in poultry practice; methods of prevention and control. Mr. Corbett.

Required of all seniors in poultry husbandry. Elective for others. 3 lec.; 1 lab.; 4 cr.

27, 28. Poultry Seminar. Students abstract experimental data and report on various current poultry topics. Thesis required. Mr. Charles, Mr. Ringrose.

Required of all seniors in poultry husbandry. Elective for others. 1-hour conference; 1 cr.

53, 54. Poultry Problems. Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solution. Mr. Charles, Mr. Corbett, Mr. Ringrose.

Required of seniors in poultry husbandry. Hours and credits to be arranged.

For courses primarily for graduate students, see catalog of the Graduate school.

PRE-DENTAL

(See page 142.)

PRE-LAW

(See page 132.)

PRE-MEDICINE

(See pages 141–142 and 156.)

PUBLICITY

The courses in publicity (communications, propaganda—courses which will assist one in mastering the technique of the dissemination of ideas) offered by several departments within the university are here grouped for the convenience of students who wish to elect work in this field.

Students who wish to extend their major programs with courses in publicity, or who wish to major in this field, should consult Professor Harold H. Scudder of the College of Liberal Arts.

COURSES OF DIRECT APPLICATION TO PUBLICITY

Public Speaking—English 35
Radio Speaking—English 39 (39)

News Writing—English 9, 10
Expository Writing—English 41 (41)
Free-hand Drawing—Arts 23, 24, 25, 26
Water color and modeling—Arts 27, 28, 11-12
Personal Use Typewriting—Secretarial Studies 5 (5) (required, but not to be used for major credit)
Photography—Arts 39, 52
Grammar—English 19

COURSES IN SUBJECTS CLOSELY ALLIED TO PUBLICITY

Principles of Human Behavior—Psychology 11 (11)
Psychology for Students of Commerce—Psychology 33
Psychology of Advertising—Psychology 34
Psychology of Personnel—Psychology 36
Principles of Economics—Economics 1-2
Economic and Commercial Geography—Economics 4
Geography of the Western and Eastern Hemispheres—Geography 1-2
Geography of North America—Geography 52
Citizenship—Government 1
War Problems—Government 2
Principles of Sociology—Sociology 1
Social Psychology—Sociology 2
American Society—Sociology 21, 22
The United States from 1790 to 1900—History 7-8
The History of England—History 21-22

PSYCHOLOGY

(See pages 129 and 238–241.)

RELIGION

(See courses in Department of History, page 263.)

SECRETARIAL STUDIES

(See pages 142–145; 157–160; 232–233.)

SOCIAL SCIENCE

The courses listed below are given under the auspices of the division of Social Science of the faculty of the College of Liberal Arts. This division includes the departments of economics and business administration, history, government, and sociology.

51. Social Statistics. A course primarily for the social science student designed to acquaint him with the place of statistics in the social science field and to bring out the significance of statistics as an instrument of research. The course will cover the meaning and interpretative use of the most commonly employed statistical symbols and terminology and the applications of these to the various social

science fields. Those interested in mathematical statistics should take mathematics 61-62. Mr. Kichline and Mr. Bachelder.

3 lec. or lab.; 3 cr.

79, 80. Seminar in State Problems. A research course in problems of current import to this state taught by staff members in the division of social science.

Hours arranged; 1-6 cr.

81, 82. Undergraduate Internships. Actual field work in a department of the state or local government. The work will be in charge of the department or agency to which the student is appointed. Arrangements for each student will be in charge of the head of the department involved or his representative.

Prereq.: Background work for the internships, substantial work in government, economics, accounting, history, or sociology. For juniors and seniors.

Not more than 16 credits. No more than 9 credits may be counted toward the completion of major requirements.

SOCIAL SERVICE

(See pages 146 and 161.

SOCIOLOGY

Charles W. Coulter, *Professor;* Joseph E. Bachelder, Jr., *Associate Professor;* Mason T. Record, *Instructor.*

1. Principles of Sociology. The underlying laws of human society, especially those governing the origin, growth and decline of institutions; group relationships to biological and geographic environments; social processes such as conflict, competition, imitation, accommodation, coöperation, assimilation and differentiation; societal isolation; culture, its organization, content, location and formation; social institutions including the familial, religious, economic, educational, recreational and political; social change with its attendant maladjustments, and social control. Mr. Bachelder and Mr. Record.

Open to all students. 3 lec. or rec.; 3 cr.
This course cannot be used to satisfy major requirements.

2. Social Psychology. The social aspects of the development and functioning of the personality; analysis of the processes through which the individual's impulses are shaped and confined by the cultural patterns of the group and of the factors which determine attitudes, wishes, habits, and social roles; a critical evaluation of the various methods used at present for the study of human nature. Messrs. Bachelder and Record.

This course cannot be used to satisfy major requirements.

21-22. American Society. A content course in educational sociology designed to acquaint the student with the nature and inter-relations of

the institutions in democratic society. Especially adapted for sophomores and juniors who require a single survey course in the field of the social sciences. Mr. Coulter.

3 lec. or rec.; 3 cr.

53. Cultural Anthropology and Ethnology. (1) A comparative study of primitive folk-ways, institutions and social organization, marriage, economic activities, religion, property inheritance and folklore; culture and the principles of its development; the significance of primitive culture for an understanding of contemporary civilization. (2) A comparative study of peoples; environmental facotrs; societal effect of invasion, colonization and linguistic fusions; race and class struggles; jingoism, race relations in mid-European territory and in the Far East; the problem of world peace. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

54. The Immigrant and the Negro. Negro and immigrant heritage; problems of assimilation and Americanization. Intensive study of selected groups, the Negro, the Jew, the Italian, the Pole, the Greek, the French-Canadian and the Japanese. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

57. Rural Sociology. The foundation materials of rural life; the physical setting—land, land-policies, land-tenure; land-economics; farm and village population—its composition, its changes; the income basis of rural life, the standard of living; rural habits, attitudes; rural groupings, arrangements, the mechanisms of communication and social control; rural institutions with respect to welfare, sociability, education and religion. Mr. Record.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

60. Urban Sociology. The changes in community life that have come with the shift of population from rural districts; factors involved in the rapid growth of cities since 1800; physical structure of the city, processes of internal growth; the segregation which makes of the city a mosaic of distinct cultural worlds; increase in mobility which multiplies social stimuli; typical areas within the city—foreign colonies, rooming house districts, apartment and hotel areas, outlying areas of homes; the effect of the city upon community life, the family, church, school, unorganized group behavior, attitudes and life organization of the person. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

61. Social Pathology. The social factors involved in alcoholism, blindness, deafness, sickness, illness, accidents, mental deficiency, mental disorder, drug addiction, prostitution, poverty, and vagrancy. The relation of personal, institutional, and community disorganization

to social and individual pathologies. Remedial measures based upon a discussion of human nature and the physical conditions of modern life. Especially recommended for pre-medical, pre-legal, and other students who will be handling social variants in their professions. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

62. Community Organization. Town and country community organization with respect to natural and interest groupings; the survey; methods of analyzing problems of community organization; methods of utilizing institutions and equipment in the development of programs and organizations for health, recreation, general welfare, and control. Mr. Record.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

71. Crime and Its Social Treatment. The increase, extent and more popular theories of crime and delinquency, juvenile and adult. Case studies of individual delinquents with special reference to the influence of family and neighborhood environments; typical social situations and their influence; programs for the social treatment of crime, the reorganization of reformatory institutions, classification of offenders for separate treatment, the "honor system," limited self-government, parole and probation, and the juvenile court as agencies for the prevention of delinquency. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

72. The Family. The rise of the marriage institution and the family. Divorce, desertion, changing status of women, child welfare, child labor laws, and related modern problems. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

73. Principles of Social Case Work. The present trend in family case work; the techniques of interviewing, diagnosis, treatment and case recording; the significance of present day relief practices. Mr. Record.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

75. Methods of Social Research. The application of the historical survey, statistical and case methods to social data; the use of bibliography, definition and selection of the problem, determination of the data needed, collection and arrangement of data for presentation and exposition. Mr. Bachelder.

Prereq.: Sociology 1 and 2, for majors in Sociology; without prerequisite for other students in division of social science. 3 lec. or rec.; 3 cr.

The departments of economics, agricultural economics, government, history, mathematics and sociology offer jointly a course designed to meet

the needs of those social science students who are interested primarily in statistics as applied to the social science fields. This course is listed as social statistics 51. (*See page 307.*)

Students majoring in mathematics and those interested in mathematical statistics should take mathematics 61–62.

84. Methods of Social Progress. Efforts to improve social conditions and attain a larger measure of social justice; community experiments; development of modern social legislation; application of principles of insurance to social problems; various forms of mutual aid and philanthropy; endowments and special foundations. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

87. The Church in American Society. Contemporary organizations for worship in the community, their correlation, functions, and problems; the rise of the church and its relation to labor, the state, school, social welfare agencies; significance to the community of its organization and financing; church federation and union. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

88. Recreation and Leisure. Problems arising from the increase of leisure time in modern society; typical leisure time activities; theories of play; practical training programs in recreation; the function of leadership; analysis of types and qualities of leadership as exhibited by typical leaders; the material and program of leadership training. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

95, 96. Sociological Research. A workroom course for seniors who have had at least twelve hours in sociology and who have completed sociology 75. Research projects will be set up in conference with the instructor and worked out individually or in groups by members of the class. Emphasis is placed on techniques of gathering data and on presentation of the findings. Mr. Bachelder.

Prereq.: Sociology 75. Hours to be arranged. 3 cr.

97, 98. Social Service. Field work, designed to give the student an understanding of social work through observation and participation. Lectures, readings and conferences will be offered during the college year. The field work requirement may be satisfied either during the college year in coöperation with neighboring social agencies or during the summer by eight weeks' work with other accredited social work institutions. The department will arrange for a limited number of student summer placements with well supervised settlements, correctional institutions and case work agencies in Chicago, Cleveland, Pittsburgh, Boston and other urban centers. It is strongly recommended that students who can qualify should acquire this experience in the summer following the junior year. In most cases agencies offer no remuneration beyond living expenses. Mr. Coulter and Mr. Record.

Prereq.: 12 credits of work in sociology. 3 cr.

UNIVERSITY OF NEW HAMPSHIRE

SPANISH

(See LANGUAGES, page 278.)

STENOGRAPHY

(See pages 142–145; 157–160; 232–233.)

TEACHER PREPARATION

(See pages 118–119 and 162–177.)

THERAPY

(See OCCUPATIONAL THERAPY, pages 140–141 and 154–155.)

TYPING

(See page 232.)

ZOÖLOGY

(See pages 131 and 215–218.)

SUMMARY OF REGISTRATION

	Agriculture				Liberal Arts				Technology				Miscellaneous				Total											
																	Men				Women				Both			
	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39	1941–42	1940–41	1939–40	1938–39
Senior	29	47	49	44	289	273	259	263	65	68	64	62	....	....	....	....	222	265	256	252	161	123	116	117	383	388	372	369
Junior	37	33	50	48	298	306	299	256	100	71	80	71	....	....	....	....	286	254	297	257	149	156	132	118	435	410	429	375
Sophomore	33	49	36	66	324	330	327	341	105	119	96	108	....	....	....	....	291	347	294	366	171	151	165	149	462	498	459	515
Freshman	52	51	60	40	400	357	379	351	148	127	148	123	....	....	....	....	372	340	403	319	228	195	184	195	600	535	587	514
Special	7	5	8	10	80	78	67	56	6	8	9	4	....	....	....	....	35	44	39	36	58	47	45	34	93	91	84	70
Graduate	...	...	...	...	....	....	....	....	...	...	...	...	125	136	130	118	82	101	87	89	43	35	43	29	125	136	130	118
Total—regular curricula	158	185	203	208	1391	1344	1331	1267	424	393	397	368	125	136	130	118	1288	1351	1376	1319	810	707	685	642	2098	2058	2061	1961
Non-degree curricula																												
2nd yr.	18	31	24	12	....	....	....	....	...	...	...	...	....	....	....	....	15	27	24	12	3	4	...	...	18	31	24	12
1st yr.	25	18	34	40	....	....	....	....	...	...	...	...	....	....	....	....	23	18	32	40	2	...	2	...	25	18	34	40
Total	43	49	58	52	....	....	....	....	...	...	...	...	....	....	....	....	38	45	56	52	5	4	2	...	43	49	58	52
Summer School	...	...	...	...	....	....	....	....	...	...	...	...	479	524	516	437	192	264	272	240	287	260	244	197	479	524	516	437
N.Y.A. Center	...	...	...	...	....	....	....	....	...	...	...	...	....	193	...	...	....	193	....	....	....	....	....	....	....	193	....	....
U. S. War training courses																												
On campus	...	...	...	...	....	....	....	....	...	...	...	...	539	447	...	...	523	443	....	....	16	4	...	...	539	447	....	....
Off campus	...	...	...	...	....	....	....	....	...	...	...	...	530	133	...	...	476	133	....	....	54	...	...	...	530	133	....	....
Total Federal	...	...	...	...	....	....	....	....	...	...	...	...	1069	773	...	...	999	769	....	....	70	4	...	...	1069	773	....	....
Total—short curricula	43	49	58	52	....	....	....	....	...	...	...	...	1548	1297	516	437	1229	1078	328	292	362	268	246	197	1591	1346	574	489
Grand Total	201	234	261	260	1391	1344	1331	1267	424	393	397	368	1673	1433	646	437	2517	2429	1704	1611	1172	975	931	839	3689	3404	2635	2450
Less duplicates	...	...	...	...	....	....	....	....	...	...	...	...	309	101	118	68	263	70	87	54	46	31	31	14	309	101	118	68
Net Gross Total	201	234	261	260	1391	1344	1331	1267	424	393	397	368	1364	1332	528	369	2254	2359	1617	1557	1126	944	900	825	3380	3303	2517	2382

The curricula included in the three colleges are: Agriculture: Agricultural Chemistry, Animal Husbandry, Botany and Bacteriology, Dairy Husbandry, Entomology, Forestry, General, Horticulture, Poultry Husbandry, and Teacher Training; Liberal Arts: General, Cooperative Hospital, General Business, Home Economics, Hotel Administration, Music Education, Physical Education, Secretarial, Social Science, Teacher Training, and Pre-Medical; Technology: Architecture, Chemistry, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Chemical Engineering.

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